No. 22-11707

UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT

PAUL A. EKNES-TUCKER, et al.,
Plaintiffs-Appellees,

&

UNITED STATES OF AMERICA
Intervenor-Plaintiff-Appellee,

v.

GOVERNOR OF THE STATE OF ALABAMA, et al.,
Defendants-Appellants.

On Appeal from the United States District Court
for the Middle District of Alabama
Case No. 2:22-cv-184-LCB

APPELLANTS' APPENDIX VOLUME I OF XIII

Christopher Mills
SPERO LAW LLC
557 East Bay St.,
#22251
Charleston, SC 29451
(843) 606-0640
cmills@spero.law

Steve Marshall
Attorney General
Edmund G. LaCour Jr.
Solicitor General
A. Barrett Bowdre
Thomas A. Wilson
Deputy Solicitors General
James W. Davis
Deputy Attorney General
Benjamin M. Seiss
Assistant Attorney General
STATE OF ALABAMA
OFFICE OF THE ATTORNEY GENERAL
501 Washington Ave.
Montgomery, AL 36130
(334) 242-7300
Edmund.LaCour@AlabamaAG.gov

July 5, 2022

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APPEAL

U.S. District Court
Alabama Middle District (Montgomery)
CIVIL DOCKET FOR CASE #: 2:22-cv-00184-LCB-SRW

Eknes-Tucker et al v. Marshall et al
Assigned to: Honorable Judge Liles C. Burke
Referred to: Honorable Judge Susan Russ Walker
Case in other court: 22-11707-JJ
Cause: 42:1983 Civil Rights Act

Date Filed: 04/19/2022
Jury Demand: None
Nature of Suit: 950 Constitutional - State Statute
Jurisdiction: Federal Question

Plaintiff

Paul A. Eknes-Tucker
Rev.

represented by **Abigail Hoverman Terry**
KING & SPALDING LLP
110 North Wacker Drive, Suite 3800
Suite 3800
Chicago, IL 60606
312-764-6931
Email: ahoverman@kslaw.com
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Adam Reinke
King & Spalding
1180 Peachtree St
Atlanta, GA 30309
404-572-4600
Fax: 404-572-5100
Email: areinke@kslaw.com
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amie A. Vague
Lightfoot Franklin & White LLC
400 20th Street North
Birmingham, AL 35203
205-581-0700
Fax: 205-581-0799
Email: avague@lightfootlaw.com
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Asaf Orr
National Center for Lesbian Rights
870 Market St.
Suite 370

San Francisco, CA 94102
415-365-1326
Email: aorr@nclrights.org
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Brent P. Ray
KING & SPALDING LLP
110 North Wacker Drive, Suite 3800
Suite 3800
Chicago, IL 60606
312-764-6925
Fax: 312-995-6330
Email: bray@kslaw.com
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Cynthia Cheng-Wun Weaver
Human Rights Campaign Foundation
1640 Rhode Island Ave NW
Washington, DC 20036-3200
202-527-3669
Email: cynthia.weaver@hrc.org
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Diego Armando Soto
Southern Poverty Law Center
LGBT Rights & Special Litigation
400 Washington Ave
Montgomery, AL 36104
334-956-8200
Fax: 334-956-8481
Email: diego.soto@splcenter.org
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Gilbert Olusegun Oladeinbo
KING & SPALDING LLP
1180 Peachtree Street Northeast, Suite 1600
Atlanta, GA 30309
657-246-9960
Email: goladeinbo@gmail.com
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

James Andrew Pratt
King & Spalding
1180 Peachtree St - Ste 1700

Atlanta, GA 30309
404-572-3576
Email: apratt@kslaw.com
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jeffrey P. Doss
Lightfoot, Franklin & White LLC
The Clark Bldg - 400 20th St N
Birmingham, AL 35203
205-581-0773
Fax: 205-581-0799
Email: jdoss@lightfootlaw.com
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jennifer L. Levi
GLBTQ Advocates & Defenders
19 Tremont Street, Suite 950
Boston, MA 02108
617-426-1350
Email: jlevi@glad.org
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jessica Lynn Stone
Southern Poverty Law Center
400 Washington Ave
Montgomery, AL 36104
404-807-0969
Email: jessica.stone@splcenter.org
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Melody Hurdle Eagan
Lightfoot Franklin & White LLC
400 20th Street North; The Clark Building
Birmingham, AL 35203
205-581-0700
Fax: 205-581-0799
Email: meagan@lightfootlaw.com
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Michael B. Shortnacy
King & Spalding LLP
633 W 5th Street
Suite 1600
Los Angeles, CA 90071

213-443-4341
Email: mshortnacy@kslaw.com
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Misty L. Peterson
KING & SPALDING LLP
1180 Peachtree Street Northeast, Suite 1600
Atlanta, GA 30309
404-572-4939
Email: mpeterson@kslaw.com
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Sarah Warbelow
HUMAN RIGHTS CAMPAIGN FOUNDATION
1640 Rhode Island Ave., NW
Washington, DC 20036
202-628-4160
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Scott Daniel McCoy
Southern Poverty Law Center
2 S. Biscayne Blvd.
Ste 3750
Miami, FL 33131
334-224-4309
Fax: 786-237-2949
Email: scott.mccoy@splcenter.org
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Plaintiff

Brianna Boe
individually and on behalf of her minor son, Michael Boe

represented by

Abigail Hoverman Terry
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Adam Reinke
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amie A. Vague
(See above for address)
LEAD ATTORNEY
PRO HAC VICE

ATTORNEY TO BE NOTICED

Asaf Orr
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Brent P. Ray
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Cynthia Cheng-Wun Weaver
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Diego Armando Soto
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Gilbert Olusegun Oladeinbo
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

James Andrew Pratt
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jeffrey P. Doss
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jennifer L. Levi
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jessica Lynn Stone
(See above for address)
LEAD ATTORNEY
PRO HAC VICE

ATTORNEY TO BE NOTICED

Melody Hurdle Eagan
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Michael B. Shortnacy
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Misty L. Peterson
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Sarah Warbelow
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Scott Daniel McCoy
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Plaintiff

James Zoe
individually and on behalf of his minor son, Zachary Zoe

represented by **Abigail Hoverman Terry**
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Adam Reinke
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amie A. Vague
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Asaf Orr
(See above for address)
LEAD ATTORNEY
PRO HAC VICE

ATTORNEY TO BE NOTICED

Brent P. Ray
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Cynthia Cheng-Wun Weaver
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Diego Armando Soto
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Gilbert Olusegun Oladeinbo
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

James Andrew Pratt
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jeffrey P. Doss
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jennifer L. Levi
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jessica Lynn Stone
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Melody Hurdle Eagan
(See above for address)
LEAD ATTORNEY
PRO HAC VICE

ATTORNEY TO BE NOTICED

Michael B. Shortnacy
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Misty L. Peterson
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Sarah Warbelow
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Scott Daniel McCoy
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Plaintiff

Megan Poe
individually and on behalf of her minor daughter, Allison Poe

represented by **Abigail Hoverman Terry**
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Adam Reinke
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amie A. Vague
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Asaf Orr
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Brent P. Ray
(See above for address)
LEAD ATTORNEY
PRO HAC VICE

ATTORNEY TO BE NOTICED

Cynthia Cheng-Wun Weaver
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Diego Armando Soto
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Gilbert Olusegun Oladeinbo
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

James Andrew Pratt
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jeffrey P. Doss
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jennifer L. Levi
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jessica Lynn Stone
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Melody Hurdle Eagan
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Michael B. Shortnacy
(See above for address)
LEAD ATTORNEY
PRO HAC VICE

ATTORNEY TO BE NOTICED

Misty L. Peterson
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Sarah Warbelow
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Scott Daniel McCoy
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Plaintiff

Kathy Noe
individually and on behalf of her minor son, Christopher Noe

represented by **Abigail Hoverman Terry**
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Adam Reinke
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amie A. Vague
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Asaf Orr
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Brent P. Ray
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Cynthia Cheng-Wun Weaver
(See above for address)
LEAD ATTORNEY
PRO HAC VICE

ATTORNEY TO BE NOTICED

Diego Armando Soto
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Gilbert Olusegun Oladeinbo
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

James Andrew Pratt
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jeffrey P. Doss
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jennifer L. Levi
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jessica Lynn Stone
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Melody Hurdle Eagan
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Michael B. Shortnacy
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Misty L. Peterson
(See above for address)
LEAD ATTORNEY
PRO HAC VICE

ATTORNEY TO BE NOTICED

Sarah Warbelow
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Scott Daniel McCoy
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Plaintiff

Jane Moe
Ph.D.

represented by **Abigail Hoverman Terry**
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Adam Reinke
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amie A. Vague
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Asaf Orr
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Brent P. Ray
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Cynthia Cheng-Wun Weaver
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Diego Armando Soto
(See above for address)
LEAD ATTORNEY
PRO HAC VICE

ATTORNEY TO BE NOTICED

Gilbert Olusegun Oladeinbo
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

James Andrew Pratt
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jeffrey P. Doss
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jennifer L. Levi
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jessica Lynn Stone
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Melody Hurdle Eagan
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Michael B. Shortnacy
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Misty L. Peterson
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Sarah Warbelow
(See above for address)
LEAD ATTORNEY
PRO HAC VICE

ATTORNEY TO BE NOTICED

Scott Daniel McCoy
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Plaintiff

Rachel Koe
M.D.

represented by **Abigail Hoverman Terry**
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Adam Reinke
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amie A. Vague
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Asaf Orr
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Brent P. Ray
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Cynthia Cheng-Wun Weaver
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Diego Armando Soto
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Gilbert Olusegun Oladeinbo
(See above for address)
LEAD ATTORNEY
PRO HAC VICE

ATTORNEY TO BE NOTICED

James Andrew Pratt
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jeffrey P. Doss
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jennifer L. Levi
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Jessica Lynn Stone
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Melody Hurdle Eagan
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Michael B. Shortnacy
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Misty L. Peterson
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Sarah Warbelow
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Scott Daniel McCoy
(See above for address)
LEAD ATTORNEY

PRO HAC VICE
ATTORNEY TO BE NOTICED

V.

Intervenor Plaintiff

United States of America represented by **Alyssa C. Lareau**
DOJ-Crt
Civil Rights Division
Poc Dalton, Dennis
1425 New York Ave
Nya 5066
Washington, DC 20005
202-514-6360
Email: alyssa.lareau@usdoj.gov
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Coty Rae Montag
DOJ-Crt
Civil Rights Division
150 M Street NE
4con
Washington, DC 20002
202-598-1580
Email: coty.montag@usdoj.gov
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Eliza Dermody
DOJ-Crt
950 Pennsylvania Ave., NW
Washington, DC 20530
202-305-0463
Email: eliza.dermody@usdoj.gov
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Prim Formby Escalona
Maynard Cooper & Gale, P.C.
1901 Sixth Avenue North
2400 Regions Harbert Plaza
Birmingham, AL 35203
205-254-1988
Fax: 205-254-1999
Email: pescalona@maynardcooper.com
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Jason R. Cheek
U S Atty Office - NDAL
1801 Fourth Ave N
Birmingham, AL 35203

205-244-2104
Email: jason.cheek@usdoj.gov
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

John Michael Powers
DOJ-Crt
Civil Rights Division
950 Pennsylvania Avenue
Washington, DC 20530
202-514-1055
Email: john.powers@usdoj.gov
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Kaitlin N Toyama
Department of Justice
Civil Rights Division
950 Pennsylvania Avenue NW
Washington, DC 20530
202-353-5311
Email: kaitlin.toyama@usdoj.gov
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Lane Hines Woodke
DOJ-USAO
Ndal
United States Attorney's Office
1801 Fourth Ave., N
Birmingham, AL 35203-2101
205-244-2001
Email: lane.woodke@usdoj.gov
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Renee Michelle Williams
United States Department of Justice
Civil Rights Division
950 Pennsylvania Avenue, NW
Washington, DC 20530
202-598-3210
Email: renee.williams3@usdoj.gov
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Sandra Jean Stewart
United States Attorney Office
131 Clayton Street
Montgomery, AL 36104
334-551-1705
Fax: 334-223-7135
Email: sandra.stewart@usdoj.gov
LEAD ATTORNEY

ATTORNEY TO BE NOTICED

Stephen D Wadsworth
US Attorney's Office for the Middle District of Alabama
131 Clayton Street
Montgomery, AL 36104
334-223-7280
Fax: 334-223-7560
Email: stephen.wadsworth@usdoj.gov
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

V.

Defendant

Kay Ivey
in her official capacity as Governor of the State of Alabama
TERMINATED: 05/05/2022

represented by **Benjamin Matthew Seiss**
Alabama Attorney General's Office
501 Washington Avenue
Montgomery, AL 36104
334-353-8917
Email: ben.seiss@alabamaag.gov
TERMINATED: 05/05/2022
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Christopher Ernest Mills
Spero Law LLC
557 East Bay Street
Charleston, SC 29413
843-606-0640
Email: cmills@spero.law
TERMINATED: 05/05/2022
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Edmund Gerard LaCour , Jr.
Office of the Attorney General
501 Washington Ave
Montgomery, AL 36130
334-353-2196
Fax: 334-242-4891
Email: edmund.lacour@alabamaag.gov
TERMINATED: 05/05/2022
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

James William Davis
State of Alabama
Office of the Attorney General
501 Washington Avenue
Montgomery, AL 36130

334-242-7300
Fax: 334-353-8400
Email: Jim.Davis@AlabamaAG.gov
TERMINATED: 05/05/2022
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Alexander Barrett Bowdre
Office of the Alabama Attorney General
501 Washington Ave.
P.O. Box 300152
Montgomery, AL 36130
334-353-8892
Fax: 334-353-8400
Email: barrett.bowdre@alabamaag.gov
TERMINATED: 05/05/2022
ATTORNEY TO BE NOTICED

Thomas Alexander Wilson
Office of The Attorney General - Alabama
501 Washington Ave
Montgomery, AL 36104
334-353-8931
Email: thomas.wilson@alabamaag.gov
TERMINATED: 05/05/2022
ATTORNEY TO BE NOTICED

Defendant

Steve Marshall
in his official capacity as Attorney General of the State of Alabama

represented by

Benjamin Matthew Seiss
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Christopher Ernest Mills
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Edmund Gerard LaCour , Jr.
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

James William Davis
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Alexander Barrett Bowdre
(See above for address)
ATTORNEY TO BE NOTICED

Thomas Alexander Wilson

(See above for address)
ATTORNEY TO BE NOTICED

Defendant

Daryl D. Bailey
in his official capacity as District Attorney for Montgomery County

represented by **Alexander Barrett Bowdre**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Benjamin Matthew Seiss
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Christopher Ernest Mills
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Edmund Gerard LaCour , Jr.
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

James William Davis
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Thomas Alexander Wilson
(See above for address)
ATTORNEY TO BE NOTICED

Defendant

C. Wilson Baylock
in his official capacity as District Attorney for Cullman County

represented by **Alexander Barrett Bowdre**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Benjamin Matthew Seiss
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Christopher Ernest Mills
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Edmund Gerard LaCour , Jr.
(See above for address)
LEAD ATTORNEY

ATTORNEY TO BE NOTICED

James William Davis
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Thomas Alexander Wilson
(See above for address)
ATTORNEY TO BE NOTICED

Defendant

Jessica Ventiere
in her official capacity as District Attorney for Lee County

represented by **Alexander Barrett Bowdre**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Benjamin Matthew Seiss
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Christopher Ernest Mills
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Edmund Gerard LaCour , Jr.
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

James William Davis
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Thomas Alexander Wilson
(See above for address)
ATTORNEY TO BE NOTICED

Defendant

Tom Anderson
in his official capacity District Attorney for the 12th Judicial Circuit

represented by **Alexander Barrett Bowdre**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Benjamin Matthew Seiss
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Christopher Ernest Mills

(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Edmund Gerard LaCour , Jr.
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

James William Davis
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Thomas Alexander Wilson
(See above for address)
ATTORNEY TO BE NOTICED

Defendant

Danny Carr
in his official capacity as District Attorney for Jefferson County

represented by **Alexander Barrett Bowdre**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Benjamin Matthew Seiss
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Christopher Ernest Mills
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Edmund Gerard LaCour , Jr.
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

James William Davis
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Thomas Alexander Wilson
(See above for address)
ATTORNEY TO BE NOTICED

Amicus

State of Arkansas

represented by **Mark Douglas Wilkerson**
Wilkerson & Bryan, P.C.
P.O. Box 830

Montgomery, AL 36104
334-265-1500
Email: mark@wilkersonbryan.com
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael A. Cantrell
Office of the Arkansas Attorney General
Office of the Arkansas Attorney General
323 Center Street
Suite 200
Little Rock, AR 72201
501-682-2401
Email: michael.cantrell@arkansasag.gov
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Amicus

State of West Virginia represented by **Mark Douglas Wilkerson**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael A. Cantrell
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Amicus

State of Indiana represented by **Mark Douglas Wilkerson**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael A. Cantrell
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Amicus

State of Nebraska represented by **Mark Douglas Wilkerson**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael A. Cantrell
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Amicus

State of Louisiana represented by **Mark Douglas Wilkerson**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael A. Cantrell
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Amicus

State of Texas represented by **Mark Douglas Wilkerson**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael A. Cantrell
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Amicus

State of Mississippi represented by **Mark Douglas Wilkerson**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael A. Cantrell
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Amicus

State of Georgia represented by **Mark Douglas Wilkerson**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael A. Cantrell
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Amicus

State of South Carolina represented by **Mark Douglas Wilkerson**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael A. Cantrell
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Amicus

State of Oklahoma represented by **Mark Douglas Wilkerson**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael A. Cantrell
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Amicus

State of Alaska represented by **Mark Douglas Wilkerson**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael A. Cantrell
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Amicus

State of Utah represented by **Mark Douglas Wilkerson**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael A. Cantrell
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Amicus

State of Montana represented by **Mark Douglas Wilkerson**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael A. Cantrell
(See above for address)
LEAD ATTORNEY

PRO HAC VICE
ATTORNEY TO BE NOTICED

Amicus

State of Arizona represented by **Mark Douglas Wilkerson**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael A. Cantrell
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Amicus

State of Missouri represented by **Mark Douglas Wilkerson**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael A. Cantrell
(See above for address)
LEAD ATTORNEY
PRO HAC VICE
ATTORNEY TO BE NOTICED

Amicus

American Academy of Pediatrics represented by **Barry Alan Ragsdale**
Dominick Feld Hyde, P.C.
Litigation
1130 22nd St S - Ste 4000
Birmingham, AL 35205
205-536-8888
Fax: 205-271-9696
Email: BRagsdale@dfhlaw.com
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
COVINGTON & BURLING LLP
Salesforce Tower
415 Mission St., Suite 5400
415 Mission Street
Suite 5400
San Francisco, CA 94105
415-591-7078
Email: clannin@cov.com
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
COVINGTON & BURLING, LLP

One CityCenter
850 Tenth St., N.W.
850 Tenth Street, NW
Washington, DC 20001
202-662-5294
Email: jveta@cov.com
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
COVINGTON & BURLING, LLP
One CityCenter
850 Tenth St., N.W.
Washington, DC 20001
202-662-6000
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
Covington & Burling LLP
1999 Avenue of the Stars
1999 Avenue of the Stars
Ste 35th Floor
Los Angeles, CA 90067
424-332-4780
Email: mlanosa@cov.com
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
Dominick Feld Hyde
1130 22nd St S
Ste 4000
Birmingham, AL 35205
205-536-8888
Email: RVANCE@DFHLAW.COM
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
COVINGTON & BURLING, LLP
One CityCenter
850 Tenth St., N.W.
Washington, DC 20001
202-662-5102
Email: wisasi@cov.com
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

Alabama Chapter of the American Academy of Pediatrics

represented by

Barry Alan Ragsdale
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

Academic Pediatric Association represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)

LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

American Academy of Child and Adolescent Psychiatry represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

American Academy of Family Physicians represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

American Academy of Nursing represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)

LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

American Association of Physicians for Human Rights, Inc.
doing business as
GLMA: Health Professionals Advancing LGBTQ Equality

represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

American College of Obstetricians and Gynecologists

represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

American College of Osteopathic Pediatricians

represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)

LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

American College of Physicians represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

American Medical Association represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

American Psychiatric Association represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)

LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

Association of American Medical Colleges

represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

Association of Medical School Pediatric Department Chairs

represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

The Endocrine Society represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)

LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

National Association of Pediatric Nurse Practitioners represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

Pediatric Endocrine Society represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

Society for Adolescent Health and Medicine

represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)

LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

Society for Pediatric Research represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

Society of Pediatric Nurses represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

Societies for Pediatric Urology represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)

LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

World Professional Association for Transgender Health

represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Amicus

American Pediatric Society

represented by **Barry Alan Ragsdale**
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Cortlin Hall Lannin
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

D. Jean Veta
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Elizabeth Baia
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Michael J. Lanosa
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Robert Smith Vance , III
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

William Isasi
(See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Date Filed	#	Docket Text
04/19/2022	1	COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF against Tom Anderson, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Kay Ivey, Steve Marshall, Jessica Ventiere (Filing fee $ 402.00 receipt number 4602066590.), filed by Kathy Noe, Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Megan Poe, James Zoe, Jane Moe. (Attachments: # 1 Civil Cover Sheet, # 2 Receipt) (wcl,) (Entered: 04/20/2022)
04/20/2022	2	Summons Issued as to Tom Anderson, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Kay Ivey, Steve Marshall, Jessica Ventiere and returned to counsel for personal service by process server. (wcl,) (Entered: 04/20/2022)
04/20/2022	3	**ORDER: The Honorable Liles C. Burke, United States District Judge for the Northern District of Alabama, was previously assigned two cases substantially similar to the above-captioned case, both of which were voluntarily dismissed on April 15, 2022. By order of the Chief Judge of the United States Court of Appeals for the Eleventh Circuit, all United States District Judges in the State of Alabama may preside over cases in any of the State's three federal judicial districts. In accordance with that order, and by the authority of the Court to manage the district court docket, promote the orderly and expeditious disposition of cases, and reassign a case to a judge who presided over a prior-related case, this case is REASSIGNED to Judge Burke. Judge Burke shall sit by designation and preside over this case in**

		the United States District Court for the Middle District of Alabama. Signed by Honorable Judge R. Austin Huffaker, Jr on 4/20/2022. (wcl,) (Entered: 04/20/2022)
04/20/2022	4	Case Reassigned to Honorable Judge Liles C. Burke as presiding judge; Honorable Judge R. Austin Huffaker, Jr no longer assigned to the case. (wcl,) (Entered: 04/20/2022)
04/20/2022	5	**ORDER setting Status Conference for Friday, 4/22/2022, at 10:00 AM CDT in Courtroom 2F before Honorable Judge Liles C. Burke; Local counsel for Plaintiffs shall electronically serve a copy of this order on all non-local counsel for Plaintiffs and on all counsel for Defendants. Signed by Honorable Judge Liles C. Burke on 4/20/2022. (furn: calendar, dh) (wcl,)** (Entered: 04/20/2022)
04/20/2022	6	MOTION for Leave to File *(Motion for Leave to Proceed Pseudonymously)* by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Eagan, Melody) (Entered: 04/20/2022)
04/21/2022	7	MOTION for Preliminary Injunction , MOTION for Temporary Restraining Order by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Attachments: # 1 Text of Proposed Order - Temporary Restraining Order, # 2 Text of Proposed Order - Preliminary Injunction)(Eagan, Melody) (Entered: 04/21/2022)
04/21/2022	8	BRIEF/MEMORANDUM in Support re 7 MOTION for Preliminary Injunction MOTION for Temporary Restraining Order filed by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Attachments: # 1 Exhibit 1 - Hawkins Declaration, # 2 Exhibit 2 - Ladinsky Declaration, # 3 Exhibit 3 - Rosenthal Declaration, # 4 Exhibit 4 - Eknes-Tucker Declaration, # 5 Exhibit 5 - Boe Declaration, # 6 Exhibit 6 - Zoe Declaration, # 7 Exhibit 7 - Poe Declaration, # 8 Exhibit 8 - Noe Declaration, # 9 Exhibit 9 - Moe Declaration, # 10 Exhibit 10 - Koe Declaration)(Eagan, Melody) (Entered: 04/21/2022)
04/21/2022	9	Alias Summons issued as to Daryl D. Bailey and returned to Counsel for service via Process Server. (cwl,) (Entered: 04/21/2022)
04/21/2022	10	NOTICE of Appearance by Edmund Gerard LaCour, Jr on behalf of Kay Ivey, Steve Marshall (LaCour, Edmund) (Entered: 04/21/2022)
04/21/2022	11	NOTICE of Appearance by Thomas Alexander Wilson on behalf of Kay Ivey, Steve Marshall (Wilson, Thomas) (Entered: 04/21/2022)
04/21/2022	12	NOTICE of Appearance by Alexander Barrett Bowdre on behalf of Kay Ivey, Steve Marshall (Bowdre, Alexander) (Entered: 04/21/2022)
04/21/2022	13	SUMMONS Returned Executed by Kathy Noe, Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Megan Poe, James Zoe, Jane Moe. Danny Carr served on 4/21/2022, answer due 5/12/2022. (Eagan, Melody) (Entered: 04/21/2022)
04/21/2022	14	NOTICE of Appearance by Benjamin Matthew Seiss on behalf of Kay Ivey, Steve Marshall (Seiss, Benjamin) (Main Document 14 replaced on 4/21/2022 to attach the correct main PDF document to correct the style of the case) (cwl,). (Entered: 04/21/2022)
04/21/2022	15	NOTICE of Correction re 14 Notice of Appearance, to attach the correct main PDF document to correct the style of the case. (Attachments: # 1 Correct Main doc entry 14) (cwl,) (Entered: 04/21/2022)
04/21/2022	16	Notice of Deficiency requiring filing of Corporate Disclosure/Conflict Statement sent to Kathy Noe, Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Megan Poe, James Zoe, Jane Moe. Corporate Disclosures due by 5/2/2022. (Attachments: # 1 Conflict Statement Standing Order & Sample Format)(cwl,) (Entered: 04/21/2022)

04/21/2022	17	Notice of Deficiency requiring filing of Corporate Disclosure/Conflict Statement sent to Steve Marshall & Kay Ivey. Corporate Disclosures due by 5/2/2022. (Attachments: # 1 Conflict Statement Standing Order & Sample Format)(cwl,) (Entered: 04/21/2022)
04/21/2022	18	NOTICE of Appearance by James William Davis on behalf of All Defendants (Davis, James) (Entered: 04/21/2022)
04/21/2022	19	Notice of Deficiency requiring filing of Corporate Disclosure/Conflict Statement sent to Danny Carr, Tom Anderson, Jessica Ventiere, C. Wilson Baylock & Daryl D. Bailey. Corporate Disclosures due by 5/2/2022. (Attachments: # 1 Conflict Statement Standing Order & Sample Format)(cwl,) (Entered: 04/21/2022)
04/21/2022	20	ANSWER to 1 Complaint, by Tom Anderson, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Steve Marshall, Jessica Ventiere.(Davis, James) (Entered: 04/21/2022)
04/21/2022	21	Corporate/Conflict Disclosure Statement re 19 Notice of Deficiency requiring filing of Corporate Disclosure/Conflict Statement by Tom Anderson. (Davis, James) Modified on 4/22/2022 to add link to def notice (cwl,). (Entered: 04/21/2022)
04/21/2022	22	Corporate/Conflict Disclosure Statement re 19 Notice of Deficiency requiring filing of Corporate Disclosure/Conflict Statement by Daryl D. Bailey. (Davis, James) Modified on 4/22/2022 to add link to def notice (cwl,). (Entered: 04/21/2022)
04/21/2022	23	Corporate/Conflict Disclosure Statement re 19 Notice of Deficiency requiring filing of Corporate Disclosure/Conflict Statement by C. Wilson Baylock. (Davis, James) Modified on 4/22/2022 to add link to def notice (cwl,). (Entered: 04/21/2022)
04/21/2022	24	Corporate/Conflict Disclosure Statement re 19 Notice of Deficiency requiring filing of Corporate Disclosure/Conflict Statement by Danny Carr. (Davis, James) Modified on 4/22/2022 to add link to def notice (cwl,). (Entered: 04/21/2022)
04/21/2022	25	Corporate/Conflict Disclosure Statement re 17 Notice of Deficiency requiring filing of Corporate Disclosure/Conflict Statement by Kay Ivey. (Davis, James) Modified on 4/22/2022 to add link to def notice (cwl,). (Entered: 04/21/2022)
04/21/2022	26	Corporate/Conflict Disclosure Statement re 17 Notice of Deficiency requiring filing of Corporate Disclosure/Conflict Statement by Steve Marshall. (Davis, James) Modified on 4/22/2022 to add link to def notice (cwl,). (Entered: 04/21/2022)
04/21/2022	27	Corporate/Conflict Disclosure Statement re 19 Notice of Deficiency requiring filing of Corporate Disclosure/Conflict Statement by Jessica Ventiere. (Davis, James) Modified on 4/22/2022 to add link to def notice (cwl,). (Entered: 04/21/2022)
04/21/2022	28	SUMMONS Returned Executed by Kathy Noe, Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Megan Poe, James Zoe, Jane Moe. Daryl D. Bailey served on 4/21/2022, answer due 5/12/2022. (Eagan, Melody) (Entered: 04/21/2022)
04/21/2022	29	SUMMONS Returned Executed by Kathy Noe, Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Megan Poe, James Zoe, Jane Moe. Tom Anderson served on 4/21/2022, answer due 5/12/2022. (Eagan, Melody) (Entered: 04/21/2022)
04/21/2022	30	SUMMONS Returned Executed by Kathy Noe, Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Megan Poe, James Zoe, Jane Moe. Jessica Ventiere served on 4/21/2022, answer due 5/12/2022. (Eagan, Melody) (Entered: 04/21/2022)
04/21/2022	31	SUMMONS Returned Executed by Kathy Noe, Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Megan Poe, James Zoe, Jane Moe. Steve Marshall served on 4/21/2022, answer due 5/12/2022. (Eagan, Melody) (Entered: 04/21/2022)
04/21/2022	32	SUMMONS Returned Executed by Kathy Noe, Brianna Boe, Paul A. Eknes-Tucker,

		Rachel Koe, Megan Poe, James Zoe, Jane Moe. Kay Ivey served on 4/21/2022, answer due 5/12/2022. (Eagan, Melody) (Entered: 04/21/2022)
04/21/2022		***PURSUANT TO THE 20 ANSWER - Attorney Edmund Gerard LaCour, Jr, Alexander Barrett Bowdre, Benjamin Matthew Seiss for Tom Anderson, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Jessica Ventiere added. (NO pdf attached to this entry) (cwl,) (Entered: 04/22/2022)
04/22/2022	33	Minute Entry for proceedings held before Honorable Judge Liles C. Burke: Status Conference held on 4/22/2022 (PDF available for court use only). (Court Reporter Christina Decker w/ND AL.) (dh) (Entered: 04/22/2022)
04/22/2022	34	**ORDER Setting Hearing on Motion: Evidentiary Hearing on Plfs' 7 motion for a temporary restraining order and/or a preliminary injunction is set for Thursday, 5/5/2022, at 9:00 a.m. CDT in Courtroom 2F before Honorable Judge Liles C. Burke; The hearing is scheduled to last no longer than two days with the time allotted strictly as represented by the parties during today's status conference; Forty-eight hours before the hearing begins, the parties shall file their proposed exhibits and a list of expected witnesses; On or before 4/27/2022, Dfts shall file a response to Plfs' 6 motion to proceed pseudonymously; Plfs' reply is due thirty-six hours after Dfts file their response; On or before 5/2/2022, Dfts shall file a response to Plfs' 7 motion for a temporary restraining order and/or a preliminary injunction; Plfs' reply is due thirty-six hours after Dfts file their response. Signed by Honorable Judge Liles C. Burke on 4/22/2022. (furn: calendar, dh) (wcl,)** (Entered: 04/22/2022)
04/25/2022	35	Corporate/Conflict Disclosure Statement re 16 Notice of Deficiency requiring filing of Corporate Disclosure/Conflict Statement by Paul A. Eknes-Tucker. (Eagan, Melody) Modified on 4/26/2022 to add link (cwl,). (Main Document 35 replaced on 4/26/2022 to lock down fillable PDF) (cwl,). (Entered: 04/25/2022)
04/25/2022	36	Corporate/Conflict Disclosure Statement re 16 Notice of Deficiency requiring filing of Corporate Disclosure/Conflict Statement by Rachel Koe. (Eagan, Melody) Modified on 4/26/2022 to add link (cwl,). (Main Document 36 replaced on 4/26/2022 to lock down fillable PDF) (cwl,). (Entered: 04/25/2022)
04/25/2022	37	Corporate/Conflict Disclosure Statement re 16 Notice of Deficiency requiring filing of Corporate Disclosure/Conflict Statement by Jane Moe. (Eagan, Melody) Modified on 4/26/2022 to add link (cwl,). (Main Document 37 replaced on 4/26/2022 to lock down fillable PDF) (cwl,). (Entered: 04/25/2022)
04/25/2022	38	Corporate/Conflict Disclosure Statement re 16 Notice of Deficiency requiring filing of Corporate Disclosure/Conflict Statement by Kathy Noe. (Eagan, Melody) Modified on 4/26/2022 to add link (cwl,). (Main Document 38 replaced on 4/26/2022 to lock down fillable PDF) (cwl,). (Entered: 04/25/2022)
04/25/2022	39	Corporate/Conflict Disclosure Statement re 16 Notice of Deficiency requiring filing of Corporate Disclosure/Conflict Statement by Megan Poe. (Eagan, Melody) Modified on 4/26/2022 to add link (cwl,). (Main Document 39 replaced on 4/26/2022 to lock down fillable PDF) (cwl,). (Entered: 04/25/2022)
04/25/2022	40	Corporate/Conflict Disclosure Statement re 16 Notice of Deficiency requiring filing of Corporate Disclosure/Conflict Statement by Brianna Boe. (Eagan, Melody) Modified on 4/26/2022 to add link (cwl,). (Main Document 40 replaced on 4/26/2022 to lock down fillable PDF) (cwl,). (Entered: 04/25/2022)
04/25/2022	41	Corporate/Conflict Disclosure Statement re 16 Notice of Deficiency requiring filing of Corporate Disclosure/Conflict Statement by James Zoe. (Eagan, Melody) Modified on

		4/26/2022 to add link (cwl,). (Main Document 41 replaced on 4/26/2022 to lock down fillable PDF) (cwl,). (Entered: 04/25/2022)
04/26/2022	42	Motion for Michael B. Shortnacy to Appear Pro Hac Vice (Filing fee $ 75.00 receipt number AALMDC-3210502.) by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Eagan, Melody) Modified on 4/26/2022 to add attorney's name to text & clarify that exhibit A is contained within the main PDF document (cwl,). (Entered: 04/26/2022)
04/26/2022	43	Motion for Brent P. Ray to Appear Pro Hac Vice (Filing fee $ 75.00 receipt number AALMDC-3210505.) by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Eagan, Melody) Modified on 4/26/2022 to add attorney's name to text & clarify that exhibit A is contained within the main PDF (cwl,). (Entered: 04/26/2022)
04/26/2022	44	Motion for Abigail Hoverman Terry to Appear Pro Hac Vice (Filing fee $ 75.00 receipt number AALMDC-3210507.) by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Eagan, Melody) Modified on 4/26/2022 to add attorney's name to text & clarify that exhibit A is contained within the main PDF (cwl,). (Entered: 04/26/2022)
04/26/2022	45	Motion for Misty L. Peterson to Appear Pro Hac Vice (Filing fee $ 75.00 receipt number AALMDC-3210508.) by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Eagan, Melody) Modified on 4/26/2022 to add attorney's name to text & clarify exhibit A is contained within the main PDF (cwl,). (Entered: 04/26/2022)
04/26/2022	46	Motion for Gilbert Olusegun Oladeinbo to Appear Pro Hac Vice (Filing fee $ 75.00 receipt number CALMDC-3210509.) by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Eagan, Melody) Modified on 4/26/2022 to add attorney's name to text & clarify exhibit A is contained within the main PDF (cwl,). (Entered: 04/26/2022)
04/26/2022	47	Motion for Adam Reinke to Appear Pro Hac Vice (Filing fee $ 75.00 receipt number AALMDC-3210527.) by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Eagan, Melody) Modified on 4/26/2022 to add attorney's name to text & clarify exhibit A is contain within the main PDF (cwl,). (Entered: 04/26/2022)
04/26/2022	48	Motion for Asaf Orr to Appear Pro Hac Vice (Filing fee $ 75.00 receipt number AALMDC-3210529.) by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Eagan, Melody) Modified on 4/26/2022 to add attorney's name to text & clarify exhibit A is contained within the main PDF (cwl,). (Entered: 04/26/2022)
04/26/2022	49	Motion for Jessica Lynn Stone to Appear Pro Hac Vice (Filing fee $ 75.00 receipt number AALMDC-3210531.) by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Eagan, Melody) Modified on 4/26/2022 to add attorney's name to text & clarify exhibit A is contained within the main PDF (cwl,). (Entered: 04/26/2022)
04/26/2022	50	Motion for Jennifer L. Levi to Appear Pro Hac Vice (Filing fee $ 75.00 receipt number AALMDC-3210536.) by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Eagan, Melody) Modified on 4/26/2022 to add attorney's name to text & clarify exhibit A is contained within the main PDF (cwl,). (Entered: 04/26/2022)
04/26/2022	51	Motion for Cynthia Cheng-Wun Weaver to Appear Pro Hac Vice (Filing fee $ 75.00

		receipt number AALMDC-3210537.) by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Eagan, Melody) Modified on 4/26/2022 to add attorney's name to text & clarify exhibit A is contained within the main PDF(cwl,). (Entered: 04/26/2022)
04/26/2022	52	Motion for Scott D. McCoy to Appear Pro Hac Vice (Filing fee $ 75.00 receipt number AALMDC-3210538.) by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Eagan, Melody) Modified on 4/26/2022 to add attorney's name to text & clarify exhibit A is contained within the main PDF (cwl,). (Entered: 04/26/2022)
04/26/2022	53	Motion for Sarah Warbelow to Appear Pro Hac Vice (Filing fee $ 75.00 receipt number AALMDC-3210892.) by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Eagan, Melody) Modified on 4/27/2022 to add attorney's name to text & to clarify exhibit A is contained within the main PDF (cwl,). (Entered: 04/26/2022)
04/27/2022	54	RESPONSE *in Partial Opposition* to Motion re 6 MOTION for Leave to File *(Motion for Leave to Proceed Pseudonymously)* filed by Kay Ivey, Steve Marshall, Danny Carr, Tom Anderson, Jessica Ventiere, C. Wilson Baylock, Daryl D. Bailey, . (LaCour, Edmund) Modified on 4/27/2022 to clarify text (cwl,). Modified on 4/27/2022 to add additional defs as filers (cwl,). (Entered: 04/27/2022)
04/27/2022	55	NOTICE of Appearance by Thomas Alexander Wilson on behalf of Tom Anderson, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Jessica Ventiere (Wilson, Thomas) (Entered: 04/27/2022)
04/28/2022	56	Motion for Christopher E. Mills to Appear Pro Hac Vice (Filing fee $ 75.00 receipt number AALMDC-3212297.) by Tom Anderson, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Kay Ivey, Steve Marshall, Jessica Ventiere. (Attachments: # 1 Exhibit Certificate of Good Standing)(LaCour, Edmund) Modified on 4/28/2022 to add attorney's name to text (cwl,). (Entered: 04/28/2022)
04/28/2022		***PURSUANT TO THE 56 MOTION - Attorney Christopher Ernest Mills for Tom Anderson, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Kay Ivey, Steve Marshall, Jessica Ventiere added. (NO pdf attached to this entry) (cwl,) (Entered: 04/28/2022)
04/28/2022	57	REPLY to Response to Motion re 6 MOTION for Leave to File *(Motion for Leave to Proceed Pseudonymously)* filed by Brianna Boe, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe, Paul A. Eknes-Tucker. (Attachments: # 1 Exhibit A - Supplemental Declaration of Rachel Koe, MD)(Eagan, Melody) Modified on 4/29/2022 to add additional PLF as filer (cwl,). (Entered: 04/28/2022)
04/29/2022	58	MOTION to Intervene by United States of America. (Attachments: # 1 Memorandum of Law, # 2 Exhibit Attorney Generals Certification, # 3 Exhibit Complaint in Intervention) (Cheek, Jason) (Entered: 04/29/2022)
04/29/2022	59	Corporate/Conflict Disclosure Statement by United States of America. (Cheek, Jason) (Entered: 04/29/2022)
04/29/2022	60	MOTION for Leave to File Excess Pages *(for Forthcoming Motion for a Temporary Restraining Order and a Preliminary Injunction)* by United States of America. (Cheek, Jason) (Entered: 04/29/2022)
04/29/2022	61	**TEXT ORDER: If any party has opposition to either the Government's 58 motion to intervene or 60 motion for leave to file excess pages, they shall file a response no later than 5/2/2022, at 12:00 p.m. CDT. Signed by Honorable Judge Liles C. Burke on 4/29/2022. (No pdf attached to this entry) (wcl,)** (Entered: 04/29/2022)

04/29/2022	62	MOTION for Preliminary Injunction , MOTION for Temporary Restraining Order by United States of America. (Attachments: # 1 Memorandum of Law, # 2 Antommaria Declaration)(Cheek, Jason) (Entered: 04/29/2022)
04/29/2022		MEMORANDUM in Support re 62 MOTION for Preliminary Injunction MOTION for Temporary Restraining Order filed by United States of America. (No pdf attached to this entry - see doc 62 for pdf) (cwl,) (Entered: 05/02/2022)
04/29/2022		***PURSUANT TO THE 58 MOTION - Attorney Sandra Jean Stewart, Lane H. Woodke, Stephen D Wadsworth, Alyssa C. Lareau, Renee Williams, Kaitlin Toyama for United States of America added. (No pdf attached to this entry) (cwl,) (Entered: 05/02/2022)
04/29/2022		***PURSUANT TO THE 58 MOTION - Attorney Elizabeth Prim Formby Escalona, John Michael Powers, Coty Rae Montag for United States of America added. (No pdf attached to this entry) (cwl,) (Entered: 05/02/2022)
05/02/2022	63	RESPONSE *in Partial Opposition* to Motion re 60 MOTION for Leave to File Excess Pages *(for Forthcoming Motion for a Temporary Restraining Order and a Preliminary Injunction)*, 58 MOTION to Intervene filed by Tom Anderson, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Kay Ivey, Steve Marshall, Jessica Ventiere. (Attachments: # 1 Exhibit Harris Declaration)(LaCour, Edmund) Modified on 5/2/2022 to clarify text (cwl,). (Entered: 05/02/2022)
05/02/2022	64	RESPONSE to Motion re 58 MOTION to Intervene *(PLAINTIFFS' RESPONSE TO THE UNITED STATES MOTION TO INTERVENE AND DEFENDANTS' RESPONSE* filed by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Eagan, Melody) (Entered: 05/02/2022)
05/02/2022	65	REPLY to Response to Motion re 60 MOTION for Leave to File Excess Pages *(for Forthcoming Motion for a Temporary Restraining Order and a Preliminary Injunction)*, 58 MOTION to Intervene filed by United States of America. (Cheek, Jason) (Entered: 05/02/2022)
05/02/2022	66	NOTICE of Appearance by Lane Hines Woodke on behalf of United States of America (Woodke, Lane) (Entered: 05/02/2022)
05/02/2022	67	NOTICE of Appearance by Coty Rae Montag on behalf of United States of America (Montag, Coty) (Entered: 05/02/2022)
05/02/2022	68	NOTICE of Appearance by John Michael Powers on behalf of United States of America (Powers, John) (Entered: 05/02/2022)
05/02/2022	69	NOTICE *of Filing of Evidence in Opposition to Plaintiffs' Motion for Preliminary Injunction* by Tom Anderson, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Kay Ivey, Steve Marshall, Jessica Ventiere (Attachments: # 1 Exhibit 1, # 2 Exhibit 2, # 3 Exhibit 3, # 4 Exhibit 4, # 5 Exhibit 5, # 6 Exhibit 6, # 7 Exhibit 7, # 8 Exhibit 8, # 9 Exhibit 9, # 10 Exhibit 10, # 11 Exhibit 11, # 12 Exhibit 12, # 13 Exhibit 13, # 14 Exhibit 14, # 15 Exhibit 15, # 16 Exhibit 16, # 17 Exhibit 17, # 18 Exhibit 18, # 19 Exhibit 19, # 20 Exhibit 20, # 21 Exhibit 21, # 22 Exhibit 22, # 23 Exhibit 23, # 24 Exhibit 24, # 25 Exhibit 25, # 26 Exhibit 26, # 27 Exhibit 27, # 28 Exhibit 28, # 29 Exhibit 29, # 30 Exhibit 30, # 31 Exhibit 31, # 32 Exhibit 32, # 33 Exhibit 33, # 34 Exhibit 34, # 35 Exhibit 35, # 36 Exhibit 36, # 37 Exhibit 37, # 38 Exhibit 38, # 39 Exhibit 39, # 40 Exhibit 40)(Davis, James) Modified on 5/3/2022 to clarify text (cwl,). (Entered: 05/02/2022)
05/02/2022	70	Motion for Michael A. Cantrell to Appear Pro Hac Vice (Filing fee $ 75.00 receipt number AALMDC-3214501.) by State of Arkansas, State of Alaska, State of Arizona,

		State of Georgia, State of Indiana, State of Louisiana, State of Mississippi, State of Missouri, State of Montana, State of Nebraska, State of Oklahoma, State of South Carolina, State of Texas, State of Utah, State of West Virginia . (Wilkerson, Mark) Modified on 5/3/2022 to add attorney's name to text & clarify exhibit A is contained within the main PDF (cwl,). Modified on 5/3/2022 to add additional filers (cwl,). (Entered: 05/02/2022)
05/02/2022	71	First MOTION for Leave to File *Amici Brief* by State of Arkansas, State of Alaska, State of Arizona, State of Georgia, State of Indiana, State of Louisiana, State of Mississippi, State of Missouri, State of Montana, State of Nebraska, State of Oklahoma, State of South Carolina, State of Texas, State of Utah and State of West Virginia . (Wilkerson, Mark) Modified on 5/3/2022 to add additional filers (cwl,). (Entered: 05/02/2022)
05/02/2022	72	BRIEF/MEMORANDUM in Support re 71 First MOTION for Leave to File *Amici Brief* filed by State of Arkansas, State of Alaska, State of Arizona, State of Georgia, State of Indiana, State of Louisiana, State of Mississippi, State of Missouri, State of Montana, State of Nebraska, State of Oklahoma, State of South Carolina, State of Texas, State of Utah and State of West Virginia . (Wilkerson, Mark) Modified on 5/3/2022 to add additional filers (cwl,). (Entered: 05/02/2022)
05/02/2022	73	Corporate/Conflict Disclosure Statement by State of Arkansas, State of Alaska, State of Arizona, State of Georgia, State of Indiana, State of Louisiana, State of Mississippi, State of Missouri, State of Montana, State of Nebraska, State of Oklahoma, State of South Carolina, State of Texas, State of Utah and State of West Virginia . (Wilkerson, Mark) Modified on 5/3/2022 to remove erroneous link (cwl,). Modified on 5/3/2022 to add additional filers (cwl,). (Entered: 05/02/2022)
05/02/2022	74	RESPONSE in Opposition re 7 MOTION for Preliminary Injunction MOTION for Temporary Restraining Order filed by Tom Anderson, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Kay Ivey, Steve Marshall, Jessica Ventiere. (LaCour, Edmund) (Entered: 05/02/2022)
05/02/2022	75	**ORDER: A hearing on the United States's 58 motion to intervene is set for Wednesday, 5/4/2022, at 1:15 p.m. CDT; The hearing will occur in Courtroom 2F of the Frank M. Johnson, Jr., United States Courthouse Complex; Since the State of Alabama has no opposition to the United States's 60 motion to file excess pages, the Court will grant that motion should the Court grant the United States's motion to intervene. Signed by Honorable Judge Liles C. Burke on 5/2/2022. (Furnished: Calendar & All CRDs)(amf,)** (Entered: 05/02/2022)
05/02/2022	76	**ORDER: the Court ORDERS as follows: 1. Court guests, including the press and non-participants, are prohibited from possessing and using any electronic devices in Courtroom 2F during the upcoming hearings in this case; The attorneys and members of their respective staffs may possess and use electronic or photographic technology in Courtroom 2F for the sole purpose of presenting evidence; 2. Members of the press and media shall be allowed to possess cellular phones, laptop computers, and/or tablets in Courtroom 2E and the media lounge provided that these electronic devices shall be allowed: (1) for the purposes of taking notes, personal communication unrelated to the proceedings, and accessing information only; and (2) on the condition that no photographs, audio or video recording, or live broadcasting, including digitally sharing, posting, or microblogging via a social or other media site, be conducted in the courthouse; All devices shall be registered with court security upon entry into the building; All are reminded of the prohibitions regarding photographing, recording, and/or broadcasting court proceedings, as further set out in order. Signed by Honorable Judge Liles C. Burke on 5/2/2022. (amf,)** (Entered: 05/02/2022)

05/02/2022		Exhibit List by Tom Anderson, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Kay Ivey, Steve Marshall, Jessica Ventiere. (No pdf attached to this entry - see doc 69 for pdf) (cwl,) (Entered: 05/03/2022)
05/02/2022	102	NOTICE OF FILING OF OFFICIAL TRANSCRIPT of STATUS CONFERENCE (PDF ACCESS RESTRICTED FOR 90 DAYS) held on 4/22/2022, before Judge Liles C. Burke. Court Reporter/Transcriber Christina K. Decker, Telephone number 256-506-0085. Transcript may be viewed at the court public terminal or purchased through the Court Reporter/Transcriber before the deadline for Release of Transcript Restriction. After that date it may be obtained through PACER. NOTICE OF INTENT TO REQUEST REDACTION DUE WITHIN 7 BUSINESS DAYS. Redaction Request due 5/23/2022. Redacted Transcript Deadline set for 6/2/2022. Release of Transcript Restriction set for 8/1/2022. (cwl,) (Entered: 05/12/2022)
05/03/2022	77	Witness List by Kay Ivey, Steve Marshall, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Tom Anderson, Jessica Ventiere. (Davis, James) Modified on 5/3/2022 to add additional filers left off by e-filer (cwl,). (Entered: 05/03/2022)
05/03/2022	78	Exhibit List by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe.. (Attachments: # 1 Exhibit 1 Boe, Brianna, # 2 Exhibit 2. Eknes-Ticker, Paul, # 3 Exhibit 3. Hawkins, Linda, # 4 Exhibit 4. Koe, Rachel, # 5 Exhibit 5. Koe, Rachel Supp, # 6 Exhibit 6. Ladinsky, Morissa, # 7 Exhibit 7. Ladinsky CV 11 1 21, # 8 Exhibit 8. Moe, Jane, # 9 Exhibit 9. Noe, Kathy, # 10 Exhibit 10. Poe, Megan, # 11 Exhibit 11. Rosenthal, Stephen, # 12 Exhibit 12. Zoe, James, # 13 Exhibit 13. A. Declaration, # 14 Exhibit 14. E. Guidelines, # 15 Exhibit 15. AACAP Statement, # 16 Exhibit 16. E. Society 2020 Statement, # 17 Exhibit 17. WPATH, # 18 Exhibit 18. USPATH, # 19 Exhibit 19. Yale Report, # 20 Exhibit 20. ACP, # 21 Exhibit 21. AMA, # 22 Exhibit 22. Amer Academy Peds, # 23 Exhibit 23. APA Position Statement, # 24 Exhibit 24. Endocrine Ped Statement, # 25 Exhibit 25. Trans Youth Fact Sheet, # 26 Exhibit 26. WPATH Joint Statement, # 27 Exhibit 27. Joint Statement, # 28 Exhibit 28. Statement re AL Law, # 29 Exhibit 29. TURBAN, # 30 Exhibit 30. Am Academy Peds, # 31 Exhibit 31. Ala Psych, # 32 Exhibit 32. Am Academy Peds, # 33 Exhibit 33. De VRIES, # 34 Exhibit 34. COSTA Support, # 35 Exhibit 35. DELARA, # 36 Exhibit 36. TURBAN, # 37 Exhibit 37. TURBAN, # 38 Exhibit 38. Judgment, # 39 Exhibit 39. AB v CV, # 40 Exhibit 40. Photos Under Seal, # 41 Exhibit 41. UAB Consent Form, # 42 Exhibit 42. ACHILLE, # 43 Exhibit 43. TORDOFF, # 44 Exhibit 44. Allen)(Eagan, Melody) (Attachment 40 replaced on 5/16/2022 TO ADD SEALED EXHIBIT TO THE DOCKET) (cwl,). (Entered: 05/03/2022)
05/03/2022	79	Witness List by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Eagan, Melody) (Entered: 05/03/2022)
05/03/2022	80	Exhibit List *and Witness List* by United States of America.. (Attachments: # 1 Exhibit Diagnostic & Statistical Manual of Mental Disorders, # 2 Exhibit American Academy of Pediatrics 2018 Policy Statement, # 3 Exhibit Endocrine Society Clinical Practice Guideline, # 4 Exhibit WPATH Standards of Care, # 5 Exhibit Alabama Psychological Association Statement, # 6 Exhibit American Academy of Pediatrics 2022 Statement, # 7 Exhibit Antommaria Decl., # 8 Exhibit Antommaria Bibliography, # 9 Exhibit Antommaria Curriculum Vitae, # 10 Exhibit FDA Article, # 11 Exhibit Article: Biased Science, # 12 Exhibit ABC News Article)(Cheek, Jason) (Entered: 05/03/2022)
05/03/2022	81	*Supplemental* Exhibit List by Tom Anderson, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Kay Ivey, Steve Marshall, Jessica Ventiere. (Attachments: # 1 Exhibit D41)(Davis, James) Modified on 5/3/2022 to clean up text (cwl,). (Additional attachment(s) added on 5/3/2022: # 2 Corrected Certificate of Service) (cwl,). (Entered: 05/03/2022)
05/03/2022		Witness List by United States of America. (NO pdf attached to this entry - see doc 80 for

		pdf)(cwl,) (Entered: 05/03/2022)
05/03/2022	82	**TEXT ORDER: granting 42 Motion for Michael B. Shortnacy to Appear Pro Hac Vice; granting 43 Motion for Brent P. Ray to Appear Pro Hac Vice; granting 44 Motion for Abigail Hoverman Terry to Appear Pro Hac Vice; granting 45 Motion for Misty L. Peterson to Appear Pro Hac Vice; granting 46 Motion for Gilbert Olusegun Oladeinbo to Appear Pro Hac Vice; granting 47 Motion for Adam Reinke to Appear Pro Hac Vice; granting 48 Motion for Asaf Orr to Appear Pro Hac Vice; granting 49 Motion for Jessica Lynn Stone to Appear Pro Hac Vice; granting 50 Motion for Jennifer L. Levi to Appear Pro Hac Vice; granting 51 Motion for Cynthia Cheng-Wun Weaver to Appear Pro Hac Vice; granting 52 Motion for Scott D. McCoy to Appear Pro Hac Vice; granting 53 Motion for Sarah Warbelow to Appear Pro Hac Vice; granting 56 Motion for Christopher E. Mills to Appear Pro Hac Vice; granting 70 Motion for Michael A. Cantrell to Appear Pro Hac Vice. Signed by Honorable Judge Liles C. Burke on 5/3/2022. (NO pdf attached to this entry) (cwl,)** (Entered: 05/03/2022)
05/03/2022	83	**ORDER: the Plaintiffs' Motion for Leave to Proceed Pseudonymously (Doc. 6) is GRANTED. The Plaintiffs identified as Brianna Boe, Michael Boe, James Zoe, Zachary Zoe, Megan Poe, Allison Poe, Kathy Noe, Christopher Noe, and Rachel Koe, M.D. may proceed under pseudonyms. Signed by Honorable Judge Liles C. Burke on 5/3/2022. (cwl,)** (Entered: 05/03/2022)
05/03/2022	84	Unopposed MOTION for Leave to File Exhibit Under Seal re 78 Exhibit List by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Attachments: # 1 Text of Proposed Order Proposed Order)(Eagan, Melody) Modified on 5/3/2022 to add link & clean up text (cwl,). (Entered: 05/03/2022)
05/03/2022	85	Joint MOTION to Dismiss *Defendant Kay Ivey* by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe, Tom Anderson, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Kay Ivey, Steve Marshall, Jessica Ventiere. (Eagan, Melody) Modified on 5/3/2022 to add defs as filers (cwl,). (Entered: 05/03/2022)
05/03/2022	86	NOTICE of Appearance by Alyssa C. Lareau on behalf of United States of America (Lareau, Alyssa) (Entered: 05/03/2022)
05/03/2022	87	NOTICE *of Filing Correct Defense Exhibit 41* re 81 Supplemental Exhibit List by Tom Anderson, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Kay Ivey, Steve Marshall, Jessica Ventiere (Attachments: # 1 Exhibit)(Davis, James) Modified on 5/4/2022 to clean up text & to add link (cwl,). (Entered: 05/03/2022)
05/03/2022	88	**TEXT ORDER: At the end of tomorrow's proceedings, the parties should be prepared to give their opening statements on Plaintiffs' motion for preliminary injunction. The parties' arguments shall not exceed 25 minutes each. Signed by Honorable Judge Liles C. Burke on 5/3/2022. (NO pdf attached to this entry) (cwl,)** (Entered: 05/03/2022)
05/04/2022	89	REPLY BRIEF *IN SUPPORT OF PLAINTIFFS MOTION FOR TEMPORARY RESTRAINING ORDER AND PRELIMINARY INJUNCTION* re 7 MOTION for Preliminary Injunction , MOTION for Temporary Restraining Order filed by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Eagan, Melody) Modified on 5/4/2022 to clarify text & add link (cwl,). (Entered: 05/04/2022)
05/04/2022	90	UNOPPOSED MOTION to Seal *PORTIONS OF PRELIMINARY INJUNCTION HEARING* by Rachel Koe, Megan Poe. (Attachments: # 1 Text of Proposed Order

		Proposed Order)(Eagan, Melody) Modified on 5/4/2022 to remove Brianna Boe, Paul A. Eknes-Tucker, Jane Moe, Kathy Noe, James Zoe as filers & clean up text (cwl,). (Entered: 05/04/2022)
05/04/2022	91	MOTION for Leave to File Brief of Amici Curiae by American Academy of Pediatrics, Alabama Chapter of the American Academy of Pediatrics, Academic Pediatric Association, American Academy of Child and Adolescent Psychiatry, American Academy of Family Physicians, American Academy of Nursing, American Association of Physicians for Human Rights, Inc. d/b/a GLMA: Health Professionals Advancing LGBTQ Equality, American College of Obstetricians and Gynecologists, American College of Osteopathic Pediatricians, American College of Physicians, American Medical Association, American Psychiatric Association, Association of American Medical Colleges, Association of Medical School Pediatric Department Chairs, The Endocrine Society, National Association of Pediatric Nurse Practitioners, Pediatric Endocrine Society, Society for Adolescent Health and Medicine, Society for Pediatric Research, Society of Pediatric Nurses, Societies for Pediatric Urology, World Professional Association for Transgender Health, American Pediatric Society. (Attachments: # 1 Exhibit Proposed Amicus Brief)(Ragsdale, Barry) Modified on 5/5/2022 to add as also filed on behalf of American Pediatric Society (amf,). (Entered: 05/04/2022)
05/04/2022	92	Amended Intervenor COMPLAINT , filed by United States of America. (Attachments: # 1 Certificate of the Attorney General)(Cheek, Jason) (Additional attachment(s) added on 5/5/2022: # 2 Certificate of Service) (amf,). (Entered: 05/04/2022)
05/04/2022		***PURSUANT TO THE 91 MOTION - Attorneys Cortlin H. Lannin, D. Jean Veta, William Isasi, Elizabeth Baia, Michael Lanosa, & Robert S. Vance, III for Academic Pediatric Association, Alabama Chapter of the American Academy of Pediatrics, American Academy of Child and Adolescent Psychiatry, American Academy of Family Physicians, American Academy of Nursing,Cortlin H. Lannin,D. Jean Veta,William Isasi,Elizabeth Baia,Michael Lanosa,Robert S. Vance, III for American Academy of Pediatrics, American Association of Physicians for Human Rights, Inc., American College of Obstetricians and Gynecologists, American College of Osteopathic Pediatricians, American College of Physicians, American Medical Association, American Pediatric Society, American Psychiatric Association, Association of American Medical Colleges, Association of Medical School Pediatric Department Chairs, National Association of Pediatric Nurse Practitioners, Pediatric Endocrine Society, Societies for Pediatric Urology, Society for Adolescent Health and Medicine, Society for Pediatric Research, Society of Pediatric Nurses, The Endocrine Society & World Professional Association for Transgender Health added. (No PDF attached to this entry) (amf,) (Entered: 05/05/2022)
05/04/2022	93	Minute Entry for proceedings held before Honorable Judge Liles C. Burke: Motion Hearing held on 5/4/2022 re 58 MOTION to Intervene filed by United States of America (PDF available for court use only). (Court Reporter Christine Decker.) (kcf,) (Entered: 05/05/2022)
05/05/2022		**ORAL ORDER granting 85 Joint Motion to Dismiss Defendant Kay Ivey. Entered by Honorable Judge Liles C. Burke on 5/5/22. (dh)** (Entered: 05/05/2022)
05/05/2022		Minute Entry for proceedings held before Honorable Judge Liles C. Burke: Evidentiary Hearing began on 5/5/2022 (NO PDF available; see final minute entry). (Court Reporter Christina Decker w/ND AL.) (dh) (Entered: 05/05/2022)
05/06/2022	96	Minute Entry for proceedings held before Honorable Judge Liles C. Burke: Evidentiary Hearing held on 5/6/2022 (PDF available for court use only). (Court Reporter Christina Decker w/ND AL.) (Attachments: # 1 Witness List, # 2 Pl. Exhibit List, # 3 PX1, # 4

		PX2, # 3 PX3, # 4 PX4, # 5 PX5, # 6 PX6, # 7 PX7, # 8 PX8, # 9 PX9, # 10 PX10, # 11 PX11, # 12 PX12, # 13 PX13, # 14 PX14, # 15 PX15, # 16 PX16, # 17 PX17, # 18 PX18, # 19 PX19, # 20 PX20, # 21 PX21, # 22 PX22, # 23 PX23, # 24 PX24, # 25 PX25, # 26 PX26, # 27 PX27, # 28 PX28, # 29 PX29, # 30 PX30, # 31 PX31, # 32 PX32, # 33 PX33, # 34 PX34, # 35 PX35, # 36 PX36, # 37 PX37, # 38 PX38, # 39 PX39, # 40 PX40, # 41 PX41, # 42 PX42, # 43 PX43, # 44 PX44, # 45 PX45, # 46 Intervenor (USA) Exhibit List, # 47 USA X1, # 48 USA X2, # 49 USA X3, # 50 USA X4, # 51 USA X5, # 52 USA X6, # 53 USA X7, # 54 USA X8, # 55 USA X9, # 56 USA X10, # 57 USA X11, # 58 USA X12, # 59 Def. Exhibit List, # 60 DX1, # 61 DX2, # 62 DX3, # 63 DX4, # 64 DX5, # 65 DX6, # 66 DX7, # 67 DX8, # 68 DX9, # 69 DX10, # 70 DX11, # 71 DX12, # 72 DX13, # 73 DX14, # 74 DX15, # 75 DX16, # 76 DX17, # 77 DX18, # 78 DX19, # 79 DX20, # 80 DX21, # 81 DX22, # 82 DX23, # 83 DX24, # 84 DX25, # 85 DX26, # 86 DX27, # 87 DX28, # 88 DX29, # 89 DX30, # 90 DX31, # 91 DX32, # 92 DX33, # 93 DX34, # 94 DX35, # 95 DX36, # 96 DX37, # 97 DX38, # 98 DX39, # 99 DX40, # 100 DX41, # 101 DX42 - CD Conventionally Filed) (dh) Modified on 6/8/2022 to reflect exhibits returned to counsel at conclusion of hearing. USB DRIVES (3) with all admitted exhibits to remain in court record. USB Drives and CD placed in accordion folder with file in Clerk's office. (dmn,) (Entered: 05/10/2022)
05/08/2022	94	**PROCEDURAL ORDERS & STATUS OF FORTHCOMING OPINION: the United States's 58 motion to intervene is GRANTED; the 71 & 91 motions for leave to proceed as amici curiae are GRANTED; The Court will consider the briefs in ruling on the motions for a preliminary injunction; the 84 & 90 motions to seal are GRANTED; The Court has made very substantial progress toward crafting an opinion in this matter and expects to file the opinion by the end of this week, if not sooner. Signed by Honorable Judge Liles C. Burke on 5/8/2022. (amf,)** (Entered: 05/08/2022)
05/08/2022	104	NOTICE OF FILING OF OFFICIAL TRANSCRIPT of PRELIMINARY INJUNCTION HEARING VOLUME I (PDF ACCESS RESTRICTED FOR 90 DAYS) held on 5/5/2022, before Judge Liles C. Burke. Court Reporter/Transcriber Christina K. Decker, Telephone number 256-506-0085. Transcript may be viewed at the court public terminal or purchased through the Court Reporter/Transcriber before the deadline for Release of Transcript Restriction. After that date it may be obtained through PACER. NOTICE OF INTENT TO REQUEST REDACTION DUE WITHIN 7 BUSINESS DAYS. Redaction Request due 5/31/2022. Redacted Transcript Deadline set for 6/8/2022. Release of Transcript Restriction set for 8/8/2022. (cwl,) (Entered: 05/12/2022)
05/08/2022	105	NOTICE OF FILING OF OFFICIAL TRANSCRIPT of PRELIMINARY INJUNCTION HEARING VOLUME II (PDF ACCESS RESTRICTED FOR 90 DAYS) held on 5/6/2022, before Judge Liles C. Burke. Court Reporter/Transcriber Christina K. Decker, Telephone number 256-506-0085. Transcript may be viewed at the court public terminal or purchased through the Court Reporter/Transcriber before the deadline for Release of Transcript Restriction. After that date it may be obtained through PACER. NOTICE OF INTENT TO REQUEST REDACTION DUE WITHIN 7 BUSINESS DAYS. Redaction Request due 5/31/2022. Redacted Transcript Deadline set for 6/8/2022. Release of Transcript Restriction set for 8/8/2022. (cwl,) (Entered: 05/12/2022)
05/08/2022	106	(SEALED TRANSCRIPT) NOTICE OF FILING OF OFFICIAL TRANSCRIPT of PRELIMINARY INJUNCTION HEARING VOLUME I held on 5/5/2022, before Judge Liles C. Burke. Court Reporter/Transcriber Christina K. Decker, Telephone number 256-506-0085. (cwl,) (Entered: 05/12/2022)
05/09/2022	95	BRIEF/MEMORANDUM in Opposition re 7 MOTION for Preliminary Injunction MOTION for Temporary Restraining Order *BRIEF OF 15 STATES AS AMICI CURIAE* filed by State of Alaska, State of Arizona, State of Arkansas, State of Georgia, State of

		Indiana, State of Louisiana, State of Mississippi, State of Missouri, State of Montana, State of Nebraska, State of Oklahoma, State of South Carolina, State of Texas, State of Utah, State of West Virginia. (Cantrell, Michael) (Entered: 05/09/2022)
05/11/2022	97	Motion for Robert S. Vance III to Appear Pro Hac Vice (Filing fee $ 75.00 receipt number AALMDC-3219952.) by Academic Pediatric Association, Alabama Chapter of the American Academy of Pediatrics, American Academy of Child and Adolescent Psychiatry, American Academy of Family Physicians, American Academy of Nursing, American Academy of Pediatrics, American Association of Physicians for Human Rights, Inc., American College of Obstetricians and Gynecologists, American College of Osteopathic Pediatricians, American College of Physicians, American Medical Association, American Pediatric Society, American Psychiatric Association, Association of American Medical Colleges, Association of Medical School Pediatric Department Chairs, National Association of Pediatric Nurse Practitioners, Pediatric Endocrine Society, Societies for Pediatric Urology, Society for Adolescent Health and Medicine, Society for Pediatric Research, Society of Pediatric Nurses, The Endocrine Society, World Professional Association for Transgender Health. (Ragsdale, Barry) Modified on 5/12/2022 to add attorney's name to text & clarify that Exhibit A is contained within the main PDF (cwl,). (Entered: 05/11/2022)
05/11/2022	98	Motion for D. Jean Veta to Appear Pro Hac Vice (Filing fee $ 75.00 receipt number AALMDC-3219954.) by Academic Pediatric Association, Alabama Chapter of the American Academy of Pediatrics, American Academy of Child and Adolescent Psychiatry, American Academy of Family Physicians, American Academy of Nursing, American Academy of Pediatrics, American Association of Physicians for Human Rights, Inc., American College of Obstetricians and Gynecologists, American College of Osteopathic Pediatricians, American College of Physicians, American Medical Association, American Pediatric Society, American Psychiatric Association, Association of American Medical Colleges, Association of Medical School Pediatric Department Chairs, National Association of Pediatric Nurse Practitioners, Pediatric Endocrine Society, Societies for Pediatric Urology, Society for Adolescent Health and Medicine, Society for Pediatric Research, Society of Pediatric Nurses, The Endocrine Society, World Professional Association for Transgender Health. (Ragsdale, Barry) Modified on 5/12/2022 to add attorney's name to text & clarify exhibit A is contained within the main PDF (cwl,). (Entered: 05/11/2022)
05/11/2022	99	Motion for Cortlin H. Lannin to Appear Pro Hac Vice (Filing fee $ 75.00 receipt number AALMDC-3219955.) by Academic Pediatric Association, Alabama Chapter of the American Academy of Pediatrics, American Academy of Child and Adolescent Psychiatry, American Academy of Family Physicians, American Academy of Nursing, American Academy of Pediatrics, American Association of Physicians for Human Rights, Inc., American College of Obstetricians and Gynecologists, American College of Osteopathic Pediatricians, American College of Physicians, American Medical Association, American Pediatric Society, American Psychiatric Association, Association of American Medical Colleges, Association of Medical School Pediatric Department Chairs, National Association of Pediatric Nurse Practitioners, Pediatric Endocrine Society, Societies for Pediatric Urology, Society for Adolescent Health and Medicine, Society for Pediatric Research, Society of Pediatric Nurses, The Endocrine Society, World Professional Association for Transgender Health. (Ragsdale, Barry) Modified on 5/12/2022 to add attorney's name to text & clarify exhibit A is contained within the main PDF (cwl,). (Entered: 05/11/2022)
05/11/2022	100	Motion for William Isasi to Appear Pro Hac Vice (Filing fee $ 75.00 receipt number AALMDC-3219959.) by Academic Pediatric Association, Alabama Chapter of the American Academy of Pediatrics, American Academy of Child and Adolescent

		Psychiatry, American Academy of Family Physicians, American Academy of Nursing, American Academy of Pediatrics, American Association of Physicians for Human Rights, Inc., American College of Obstetricians and Gynecologists, American College of Osteopathic Pediatricians, American College of Physicians, American Medical Association, American Pediatric Society, American Psychiatric Association, Association of American Medical Colleges, Association of Medical School Pediatric Department Chairs, National Association of Pediatric Nurse Practitioners, Pediatric Endocrine Society, Societies for Pediatric Urology, Society for Adolescent Health and Medicine, Society for Pediatric Research, Society of Pediatric Nurses, The Endocrine Society, World Professional Association for Transgender Health. (Ragsdale, Barry) Modified on 5/12/2022 to add attorney's name to text & clarify exhibit A is contained within the main PDF (cwl,). (Entered: 05/11/2022)
05/11/2022	101	Motion for Michael Lanosa to Appear Pro Hac Vice (Filing fee $ 75.00 receipt number AALMDC-3219970.) by Academic Pediatric Association, Alabama Chapter of the American Academy of Pediatrics, American Academy of Child and Adolescent Psychiatry, American Academy of Family Physicians, American Academy of Nursing, American Academy of Pediatrics, American Association of Physicians for Human Rights, Inc., American College of Obstetricians and Gynecologists, American College of Osteopathic Pediatricians, American College of Physicians, American Medical Association, American Pediatric Society, American Psychiatric Association, Association of American Medical Colleges, Association of Medical School Pediatric Department Chairs, National Association of Pediatric Nurse Practitioners, Pediatric Endocrine Society, Societies for Pediatric Urology, Society for Adolescent Health and Medicine, Society for Pediatric Research, Society of Pediatric Nurses, The Endocrine Society, World Professional Association for Transgender Health. (Ragsdale, Barry) Modified on 5/12/2022 to add attorney's name to text & clarify exhibit A is contained within the main PDF (cwl,). (Entered: 05/11/2022)
05/11/2022	103	NOTICE OF FILING OF OFFICIAL TRANSCRIPT of HEARING (PDF ACCESS RESTRICTED FOR 90 DAYS) held on 5/4/2022, before Judge Liles C. Burke. Court Reporter/Transcriber Christina K. Decker, Telephone number 256-506-0085. Transcript may be viewed at the court public terminal or purchased through the Court Reporter/Transcriber before the deadline for Release of Transcript Restriction. After that date it may be obtained through PACER. NOTICE OF INTENT TO REQUEST REDACTION DUE WITHIN 7 BUSINESS DAYS. Redaction Request due 6/1/2022. Redacted Transcript Deadline set for 6/13/2022. Release of Transcript Restriction set for 8/9/2022. (cwl,) (Entered: 05/12/2022)
05/13/2022	107	**OPINION AND ORDER: the Court GRANTS in part PlFs' 7 motion for preliminary injunction and ENJOINS Dfts from enforcing Section 4(a)(1)-(3) of the Act pending trial. The Court GRANTS in part the United States's 62 motion for preliminary injunction to the same degree and effect. All other provisions of the Act remain enforceable. Signed by Honorable Judge Liles C. Burke on 5/13/2022. (wcl,)** (Main Document 107 replaced on 5/17/2022 to correct a case number referenced in the PDF) (cwl,). (Main Document 107 replaced on 5/19/2022 to correct syntax) (cwl,). (Entered: 05/13/2022)
05/16/2022	108	NOTICE OF APPEAL by Tom Anderson, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Kay Ivey, Steve Marshall, Jessica Ventiere of Order Granting Preliminary Injunction (Doc. 107) entered on 5/13/2022. (Filing fee $ 505.00 receipt number AALMDC-3221733.) (LaCour, Edmund) Modified on 5/17/2022 to create link. (dmn,) (Entered: 05/16/2022)
05/17/2022	109	Appeal Instructions re 108 Notice of Appeal sent to Edmund LaCour, counsel for Tom Anderson, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Kay Ivey, Steve Marshall,

		Jessica Ventiere. A copy of the Transcript Information Form must be mailed to each court reporter from whom you are requesting a transcript. (Attachments: # 1 Transcript Information Form)(dmn,) (Entered: 05/17/2022)
05/17/2022	110	NOTICE of Correction re 107 OPINION AND ORDER, to attach the correct main PDF document to correct a case number referenced in the PDF. (Attachments: # 1 Correct Main doc entry 107)(cwl,) (Entered: 05/17/2022)
05/18/2022	111	Transmission of 108 Notice of Appeal, 107 Order, and Docket Sheet to US Court of Appeals. (Attachments: # 1 Docket Sheet and Appeal Record)(dmn,) (Entered: 05/18/2022)
05/19/2022	112	NOTICE of Correction re 107 OPINION AND ORDER, to attach the correct main PDF document to correct syntax. (Attachments: # 1 Correct Main doc entry 107)(cwl,) (Entered: 05/19/2022)
05/20/2022	113	Joint MOTION to Dismiss *Governor Kay Ivey* by United States of America, Jessica Ventiere, Steve Marshall, Danny Carr, C. Wilson Baylock, Daryl D. Bailey, Tom Anderson. (Cheek, Jason) Modified on 5/23/2022 to add DFTs as filers (bes,). (Entered: 05/20/2022)
05/23/2022	114	USCA Case Number 22-11707-JJ for 108 Notice of Appeal, filed by Appellants Jessica Ventiere, Kay Ivey, C. Wilson Baylock, Tom Anderson, Daryl D. Bailey, Steve Marshall, Danny Carr. Fee Status: Fee Paid. No hearings to be transcribed. The appellant's brief is due on or before 6/27/2022. The appendix is due no later than 7 days from the filing of the appellant's brief. Awaiting Appellant's Certificate of Interested Persons due on or before 6/6/2022 as to Appellant Attorney General, State of Alabama. Awaiting Appellee's Certificate of Interested Persons due on or before 6/21/2022 as to Appellee Paul A. Eknes-Tucker. (dmn,) (Entered: 05/23/2022)
05/23/2022	115	TRANSCRIPT INFORMATION FORM re 108 Notice of Appeal by Tom Anderson, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Kay Ivey, Steve Marshall, Jessica Ventiere with the following notation, "All necessary transcript(s) on file." (LaCour, Edmund) Modified on 5/24/2022 to include additional text. (dmn,) (Entered: 05/23/2022)
05/25/2022	116	ANSWER to 92 Intervenor Complaint, by Tom Anderson, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Steve Marshall, Jessica Ventiere.(Seiss, Benjamin) (Entered: 05/25/2022)
05/31/2022	117	**TEXT ORDER granting 113 Joint Motion to Dismiss Governor Kay Ivey. Signed by Honorable Judge Liles C. Burke on 5/31/2022. (No PDF attached to this entry) (bes,)** (Entered: 05/31/2022)
06/06/2022	118	ORDER of USCA addressed to Jennifer Levi as to 108 Notice of Appeal, filed by Jessica Ventiere, Kay Ivey, C. Wilson Baylock, Tom Anderson, Daryl D. Bailey, Steve Marshall, Danny Carr, 11th Circuit Appeal No. 22-11707-JJ: Jennifer Levi is permitted to appear pro hac vice in this appeal, representing the Appellees, contingent upon her payment of the $50.00 pro hac vice fee within 14 days of the date of this order. (dmn,) (Entered: 06/06/2022)
06/07/2022	120	ORDER of USCA as to 108 Notice of Appeal, filed by Jessica Ventiere, Kay Ivey, C. Wilson Baylock, Tom Anderson, Daryl D. Bailey, Steve Marshall, Danny Carr, 11th Circuit Appeal No. 22-11707-JJ: Appellants' "Unopposed Motion for Expedited Briefing and Appellate Review" is GRANTED. The Court DIRECTS the Clerk's Office to expedite the appeal for merits disposition purposes and place this appeal on the next available oral argument calendar. Briefing in this appeal shall proceed as follows: Appellants' initial brief is due by 6/27/2022, with the appendix due 7 days from the filing

		of the initial brief. Appellees' response briefs are due by 8/10/2022. Appellants' reply brief, if any, is due by 8/31/2022. (dmn,) (no pdf) (Entered: 06/08/2022)
06/08/2022	119	**TEXT ORDER: On or before 6/22/2022, the parties shall file their Rule 26(f) report or the court will set the schedule for them on 6/23/2022. Signed by Honorable Judge Liles C. Burke on 6/8/2022. (No PDF attached to this entry) (bes,)** (Entered: 06/08/2022)
06/08/2022		Pursuant to F.R.A.P. 11(c), the Clerk of the District Court for the Middle District of Alabama certifies that the record is complete for purposes of this appeal re: 108 Notice of Appeal, Appeal No. 22-11707-JJ. The entire record on appeal is available electronically with the exception of: Doc. 96 , Exhibit DX42 CD, VIDEO. (dmn,) (Entered: 06/08/2022)
06/09/2022	121	NOTICE of Appearance by Eliza Dermody on behalf of United States of America (Dermody, Eliza) (Entered: 06/09/2022)
06/16/2022	122	NOTICE of Appearance by Kaitlin N Toyama on behalf of United States of America (Toyama, Kaitlin) (Entered: 06/16/2022)
06/16/2022	123	NOTICE of Appearance by Renee Michelle Williams on behalf of United States of America (Williams, Renee) (Entered: 06/16/2022)
06/21/2022	124	Consent MOTION to unseal Dr. Koe's testimony from the preliminary injunction hearing re 106 Transcript by Tom Anderson, Daryl D. Bailey, C. Wilson Baylock, Danny Carr, Steve Marshall, Jessica Ventiere. (Attachments: # 1 Text of Proposed Order)(Bowdre, Alexander) (Entered: 06/21/2022)
06/22/2022	125	REPORT of Rule 26(f) Planning Meeting. (Eagan, Melody) (Entered: 06/22/2022)
06/24/2022	126	MOTION to Withdraw as Attorney *for Attorney Gilbert Olusegun Oladeinbo* by Brianna Boe, Paul A. Eknes-Tucker, Rachel Koe, Jane Moe, Kathy Noe, Megan Poe, James Zoe. (Attachments: # 1 Text of Proposed Order)(Oladeinbo, Gilbert) Modified on 6/25/2022 to clarify the docket text (bes,). (Entered: 06/24/2022)

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DOC. 1

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D.; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity as Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON, in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official capacity as District Attorney for Jefferson County.

Defendants.

Civil Action No.
2:22-cv-184-RAH-SRW

COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF

COMPLAINT

Reverend Paul A. Eknes-Tucker; Brianna Boe, individually and on behalf of her minor son, Michael Boe; James Zoe, individually and on behalf of his minor son, Zachary Zoe; Megan Poe, individually and on behalf of her minor daughter, Allison Poe; Kathy Noe, individually and on behalf of her minor son, Christopher Noe; Jane Moe, Ph.D.; and Rachel Koe, M.D. (collectively, "Plaintiffs"), bring this Action for Declaratory and Injunctive Relief against Defendants Kay Ivey, in her official capacity as Governor of the State of Alabama; Steve Marshall, in his official capacity as Attorney General of the State of Alabama; Daryl D. Bailey, in his official capacity as District Attorney for Montgomery County; C. Wilson Baylock, in his official capacity as District Attorney for Cullman County; Jessica Ventiere, in her official capacity as District Attorney for Lee County; Tom Anderson, in his official capacity as District Attorney for the 12th Judicial Circuit; and Danny Carr, in his official capacity as District Attorney for Jefferson County (collectively, "Defendants"), respectfully stating as follows:

PRELIMINARY STATEMENT

1. This Action is a federal constitutional challenge to the State of Alabama's Vulnerable Child Compassion and Protection Act (the "Act"), passed by the Alabama Legislature on April 7, 2022, and signed into law by Governor Kay Ivey on April 8, 2022. Unless enjoined, the Act takes effect May 8, 2022.

2. The Act intrudes into the right of parents to make medical decisions to ensure the health and wellbeing of their children. It does so by prohibiting parents from seeking and obtaining appropriate medical care for their children and subjecting them to criminal prosecution if they do so.

3. The Act also targets transgender minors by imposing criminal penalties on any individuals, including parents and health care providers, who obtain or provide medical treatments essential to the minors' health care needs.

4. Further, the Act is worded broadly, criminalizing anyone who "causes" an individual to receive the prohibited medical treatments, so that doctors, parents, and even clergy cannot discuss, advise, or counsel parents of transgender minors about how to address their children's medical needs.

5. Plaintiffs seek declaratory and injunctive relief to enjoin the enforcement of the Act. Without the injunctive relief sought, Plaintiffs will experience irreparable injury.

PARTIES

I. *Transgender Plaintiffs and Their Parents*

6. Plaintiff Brianna Boe is and has at all relevant times been a resident of Montgomery County, Alabama. She is the mother of Plaintiff Michael Boe, a 12-year-old transgender boy for whom she also appears in this case as his next friend. Because of concerns about potential criminal liability, as well as her and her child's

privacy and safety, Brianna Boe and Michael Boe seek to proceed in this case under a pseudonym. *See* Motion to Proceed Pseudonymously, filed concurrently herewith.

7. Plaintiff James Zoe is and has at all relevant times been a resident of Jefferson County, Alabama. James is the father of Plaintiff Zachary Zoe, a 13-year-old transgender boy for whom he also appears in this case as his next friend. Because of concerns about potential criminal liability, as well as his and his child's privacy and safety, James Zoe and Zachary Zoe seek to proceed in this case under a pseudonym. *See* Motion to Proceed Pseudonymously, concurrently filed herewith.

8. Plaintiff Megan Poe is and has at all relevant times been a resident of Cullman County, Alabama. She is the mother of Plaintiff Allison Poe, a 15-year-old transgender girl, for whom she also appears in this case as her next friend. Because of concerns about potential criminal liability, as well as her and her child's privacy and safety, Megan Poe and Allison Poe seek to proceed in this case under a pseudonym. *See* Motion to Proceed Pseudonymously, filed concurrently herewith.

9. Plaintiff Kathy Noe is and has at all relevant times been a resident of Lee County, Alabama. She is the mother of Plaintiff Christopher Noe, a 17-year-old transgender boy, for whom she also appears in this case as his next friend. Because of concerns about potential criminal liability, as well as her and her child's privacy and safety, Kathy Noe and Christopher Noe seek to proceed in this case under a pseudonym. *See* Motion to Proceed Pseudonymously, filed concurrently herewith.

II. *Healthcare Provider Plaintiffs*

10. Plaintiff Jane Moe is a Ph.D. level, licensed clinical child psychologist with over 20 years of experience who maintains a practice in Jefferson County, Alabama. Dr. Moe works in a hospital setting within the University of Alabama at Birmingham ("UAB") system where she regularly provides mental health care to children and adolescents, including transgender youth. Dr. Moe also resides in Jefferson County, Alabama. Because of concerns about potential criminal liability, as well as the privacy and safety of her patients, Dr. Moe seeks to proceed in this case under a pseudonym. *See* Motion to Proceed Pseudonymously, filed concurrently herewith.

11. Plaintiff Rachel Koe, M.D., is a board-certified pediatrician with over 10 years of experience. Dr. Koe is a pediatrician in southeast Alabama where she regularly treats children and adolescents. She also refers transgender patients and their parents to healthcare providers who specialize in working with transgender patients, including to the Children's Hospital of Alabama and medical staff at UAB Hospital, which are both located in Jefferson County, Alabama. Dr. Koe resides and works in the 12th Judicial Circuit of Alabama. Because of concerns about potential criminal liability, as well as the privacy and safety of her patients, Dr. Koe seeks to proceed in this case under a pseudonym. *See* Motion to Proceed Pseudonymously, filed concurrently herewith.

III. *Reverend Paul A. Eknes-Tucker*

12. Plaintiff Reverend Paul A. Eknes-Tucker is a Senior Pastor at Pilgrim Church in Birmingham, Alabama. In his role as Senior Pastor, Reverend Eknes-Tucker has provided pastoral counseling to parents of transgender children who are congregants at his church as well as members of the Birmingham community. Reverend Eknes-Tucker counsels parents of transgender children about religious faith-based teachings about love, support, and respect for all persons. He also supports parents who are seeking medical treatment for their child's gender dysphoria.

IV. *Defendants*

13. Defendant Kay Ivey is the Governor of the State of Alabama. Governor Ivey is sued in her official capacity as Governor of Alabama.

14. Defendant Steve Marshall is the Attorney General of the State of Alabama. He is the chief law enforcement officer of the State with the power to initiate criminal action to enforce the Act. In his capacity as Attorney General, Mr. Marshall has the ability to enforce the Act. Mr. Marshall is sued in his official capacity as Attorney General of Alabama.

15. Defendant Daryl D. Bailey is the District Attorney of Montgomery County, Alabama. He is the chief law enforcement officer of Montgomery County, who prosecutes all felony and some misdemeanor criminal cases which occur within

Montgomery County. In his capacity as District Attorney, Mr. Bailey has the ability to enforce the Act. Mr. Bailey is sued in his official capacity as District Attorney of Montgomery County, Alabama.

16. Defendant C. Wilson Baylock is the District Attorney for the 32nd Judicial Circuit overseeing Cullman County, Alabama. He is the chief law enforcement officer of Cullman County who prosecutes all felony criminal cases that occur within Cullman County. His prosecutorial authority extends to the enforcement of the Act within Cullman County. Defendant Baylock is sued in his official capacity as District Attorney of Cullman County, Alabama.

17. Defendant Jessica Ventiere is the District Attorney for Lee County, Alabama. She is the chief law enforcement officer of Lee County, who prosecutes all felony and some misdemeanor criminal cases which occur within Lee County. In her capacity as District Attorney, Ms. Ventiere has the ability to enforce the Act. Ms. Ventiere is sued in her official capacity as District Attorney of Lee County, Alabama.

18. Defendant Tom Anderson is the District Attorney for the 12th Judicial Circuit overseeing Coffee County and Pike County, Alabama. He is the chief law enforcement officer of Coffee and Pike Counties, who prosecutes all felony and some misdemeanor criminal cases which occur within Coffee and Pike Counties. In his capacity of District Attorney, Mr. Anderson has the ability to enforce the Act.

Mr. Anderson is sued in his official capacity as the District Attorney of the 12th Judicial Circuit.

19. Defendant Danny Carr is the District Attorney of Jefferson County, Alabama. He is the chief law enforcement officer of Jefferson County who prosecutes all felony criminal cases that occur within the Birmingham Division of Jefferson County, including the City of Birmingham. In his capacity as District Attorney, Mr. Carr has the ability to enforce the Act. Mr. Carr is sued in his official capacity as District Attorney of Jefferson County, Alabama.

20. Defendants each have separate and independent authority to enforce the Act within their respective jurisdictions.

JURISDICTION AND VENUE

21. Plaintiffs seek redress for the deprivation of their rights secured by Section 1557 of the Affordable Care Act, the United States Constitution, and the equitable powers of this Court to enjoin unlawful official conduct. This action is instituted pursuant to 42 U.S.C. § 18116 and 42 U.S.C. § 1983 to enjoin Defendants from enforcing the Act and for a declaration that the Act violates federal law. Therefore, this Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1343.

22. This Court has personal jurisdiction over Defendants because Defendants are domiciled in Alabama and the denial of Plaintiffs' rights guaranteed by federal law occurred within Alabama.

23. All Defendants reside in Alabama, and, upon information and belief, Defendants Ivey, Marshall, Bailey, Ventiere, and Anderson reside in this judicial district. Therefore, venue is proper in this district pursuant to 28 U.S.C. § 1391(b)(1).

24. If enforced, the Act would violate the federal statutory and constitutional rights of Plaintiffs in this judicial district. Therefore, venue is also proper in this district pursuant to 28 U.S.C § 1391(b)(2).

25. This Court has the authority to enter a declaratory judgment and to provide preliminary and permanent injunctive relief pursuant to Fed. R. Civ. P. 57 and 65, 28 U.S.C. §§ 2201 and 2202, and this Court's inherent equitable powers.

FACTUAL ALLEGATIONS

I. *Gender Identity and Gender Dysphoria*

26. Gender identity is an innate, internal sense of one's sex and is an immutable aspect of a person's identity. Everyone has a gender identity. Most people's gender identity is consistent with their birth sex. Transgender people, however, have a gender identity that differs from their birth sex.

27. Gender dysphoria is the clinical diagnosis for the distress that arises when a person's gender identity does not match their birth sex. To receive a

diagnosis of gender dysphoria, a young person must meet the criteria set forth in the Am. Psychiatric Ass'n, *Diagnostic and Statistical Manual of Mental Disorders* (5th ed. 2013) ("DSM-5").[1] If left untreated, gender dysphoria can cause anxiety, depression, and self-harm, including suicidality.

28. In fact, 56% of transgender youth reported a previous suicide attempt and 86% of them reported suicidality. *See* Austin, Ashley, Shelley L. Craig, Sandra D. Souza, and Lauren B. McInroy (2022), *Suicidality Among Transgender Youth: Elucidating the Role of Interpersonal Risk Factors*. J. of Interpersonal Violence. Vol. 37 (5–6) NP2696-NP2718.

29. Research has shown that an individual's gender identity is biologically based and cannot be changed. In the past, mental health professionals sought to treat gender dysphoria by attempting to change the person's gender identity to match their birth sex; these efforts were unsuccessful and caused serious harms. Today, the medical profession generally recognizes that such efforts put minors at risk of serious harm, including dramatically increased rates of suicidality.

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[1] Earlier editions of the DSM included a diagnosis referred to as "Gender Identity Disorder." The DSM-5 noted that Gender Dysphoria "is more descriptive than the previous DSM-IV term *gender identity disorder* and focuses on dysphoria as the clinical problem, not identity *per se*. Being diagnosed with gender dysphoria "implies no impairment in judgment, stability, reliability, or general social or vocational capabilities." Am. Psychiatric Ass'n, *Position Statement on Discrimination Against Transgender & Gender Variant Individuals* (2012).

30. Gender dysphoria is highly treatable. Healthcare providers who specialize in the treatment of gender dysphoria follow a well-established standard of care that has been adopted by the major medical and mental health associations in the United States including, but not limited to, the American Medical Association, the American Academy of Pediatrics, the American Association of Child and Adolescent Psychiatrists, the Pediatric Endocrine Society, the American Psychiatric Association, the American Psychological Association, and the Endocrine Society.

31. The standards of care for treatment of transgender people, including transgender youth, were initially developed by the World Professional Association for Transgender Health ("WPATH"), an international, multidisciplinary, professional association of medical providers, mental health providers, researchers, and others, with a mission of promoting evidence-based care and research for transgender health, including the treatment of gender dysphoria. WPATH published the most recent edition of the Standards of Care for the treatment of gender dysphoria in minors and adults in 2011 and is in the process of finalizing a revised edition of the Standards of Care, which will likely be published later this year.

32. The Endocrine Society has also promulgated a standard of care for the provision of hormone therapy as a treatment for gender dysphoria in minors and adults. *See* Wylie C. Hembree, et al., *Endocrine Treatment of Gender-*

Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline, 102 J. Clin. Endocrinol. Metab. 3869 (2017).

33. The American Medical Association, the American Academy of Pediatrics, the American Association of Child and Adolescent Psychiatrists, the Pediatric Endocrine Society, the American Psychiatric Association, the American Psychological Association, and other professional medical organizations also follow the WPATH and Endocrine Society standards of care.

34. The treatment of gender dysphoria is designed to reduce a transgender person's psychological distress by permitting them to live in alignment with their gender identity. Undergoing treatment for gender dysphoria is commonly referred to as transition. There are several components to the transition process: social, legal, medical, and surgical. Each of these components is part of the medically approved process for transition, some or all of which a transgender person may undertake as part of their transition.

35. Social transition typically involves adopting a new name, pronouns, hairstyle, and clothing that match that person's gender identity, and treating that person consistent with their gender identity in all aspects of their life, including home, school, and everyday life. Following those steps, transgender people often obtain a court order legally changing their name and, where possible, changing the sex listed on their birth certificate and other identity documents.

36. For transgender people who have begun puberty, it may be appropriate for them to start taking puberty-blocking medication and later hormone-replacement therapy to ensure their body develops in a manner consistent with their gender identity.

37. Finally, surgical treatment may in some cases be part of essential medical care for a transgender individual. The only surgical treatment available to transgender minors is male chest reconstruction surgery, a procedure to remove existing breast tissue and create a male chest contour for transgender males. Like all treatments for gender dysphoria, male chest reconstruction surgery is safe and effective in treating gender dysphoria. The medical necessity of surgical care is determined on a case-by-case basis that considers the age of the patient, medical need, and appropriateness of the procedure relative to the psychological development of the individual.

38. Longitudinal studies have shown that children with gender dysphoria who receive essential medical care show levels of mental health and stability consistent with those of non-transgender children. Lily Durwood, et al., *Mental Health and Self-Worth in Socially Transitioned Transgender Youth*, 56 J. Am. Acad. Child & Adolescent Psychiatry 116 (2017); Kristina Olson, et al., *Mental Health of Transgender Children who are Supported in Their Identities*, 137 Pediatrics 1 (2016). In contrast, children with gender dysphoria who do not receive appropriate

medical care are at risk of serious harm, including dramatically increased rates of suicidality and serious depression.

II. *The Alabama Vulnerable Child Compassion and Protection Act*

39. On April 8, 2022, Defendant Kay Ivey signed the Act into law, and the Act is scheduled to become effective on May 8, 2022.

40. The Act prevents parents from consenting to, and healthcare professionals from providing, well-established medically necessary care. The Act also applies to any individual who "cause[s]" such care to be provided to a transgender minor.

41. Specifically, subsection 4(a) of the Act provides that:

> Except as provided in subsection (b), no person shall engage in or cause any of the following practices to be performed upon a minor if the practice is performed for the purpose of attempting to alter the appearance of or affirm the minor's perception of his or her gender or sex, if that appearance or perception is inconsistent with the minor's sex as defined in this act:
>
> (1) Prescribing or administering puberty blocking medication to stop or delay normal puberty.
>
> (2) Prescribing or administering supraphysiologic doses of testosterone or other androgens to females.
>
> (3) Prescribing or administering supraphysiologic doses of estrogen to males.
>
> (4) Performing surgeries that sterilize, including castration, vasectomy, hysterectomy, oophorectomy, orchiectomy, and penectomy.

(5) Performing surgeries that artificially construct tissue with the appearance of genitalia that differs from the individual's sex, including metoidioplasty, phalloplasty, and vaginoplasty.

(6) Removing any healthy or non-diseased body part or tissue, except for a male circumcision.

42. A violation of subsection 4(a) of the Act is a Class C felony, punishable upon conviction by up to 10 years imprisonment or a fine of up to $15,000.

43. As a result of subsection 4(a) of the Act, medical professionals, including the Healthcare Provider Plaintiffs, and parents of transgender minors, including the Parent Plaintiffs, are forced to choose between withholding medically necessary treatment from their minor transgender patients or children, on the one hand, or facing criminal prosecution, on the other. Moreover, the broad language of the Act imposes content-based restrictions on discussions, counseling, or referrals regarding gender dysphoria treatments for well-recognized in the medical community that may result in such care being provided to a transgender minor.

III. *The Act Will Irreparably Harm the Plaintiffs*

Brianna Boe and her son Michael Boe

44. Michael Boe is a 12-year-old transgender boy who resides with his mother in Montgomery County, Alabama.

45. In his early years, Michael was a happy, outgoing child. But at nine years old, Michael became depressed and anxious. Michael also started struggling academically and socially.

46. Michael eventually confided in his mother that he felt as though he was not like other girls and was worried about being judged by his classmates. He also reported that he was being bullied in school. Brianna placed Michael in a new school for the following school year and brought him to a therapist to help him with his depression.

47. Michael began to talk with Brianna about his male gender identity and the distress and discomfort he was experiencing as he entered puberty, as his body began to develop in ways that were inconsistent with his sense of self.

48. In June 2021, Michael told his mother that he is transgender. With support from his family and a mental health provider experienced in working with transgender youth, Michael began to socially transition, including adopting a male name and pronouns and generally living as a boy in all aspects of his life.

49. Since Michael began to socially transition, his mood has improved greatly. His therapist recently recommended that Michael be evaluated for additional medical treatment to address the mismatch between his body and his gender identity.

50. In February 2022, Brianna reached out to the Children's Hospital of Alabama to make an initial appointment for Michael. If this law goes into effect,

however, that appointment will be cancelled, and Michael will have to further delay his assessment for critical medical care.

James Zoe and his son Zachary Zoe

51. James Zoe was born and raised in Alabama and attended the University of Alabama at Birmingham. Like his dad, Zachary was born in Alabama and has lived in the state his entire life. Zachary resides half-time with James and his stepmother in Jefferson County, and half-time with his biological mother and stepfather in St. Clair County.

52. Zachary is a 13-year-old transgender boy in seventh grade. He is a bright boy with a close group of friends, and is interested in video games and art.

53. Zachary was assigned female sex at birth. As a younger child, Zachary was shy and reserved. Around the age of 8, Zachary began to express his dislike of wearing dresses and bright clothing, especially pink. Over time, Zachary started dressing in more masculine attire and became upset if people identified him as a girl.

54. Around a year later, he started puberty. Zachary was distressed that he was developing breasts and had to deal with his period. This caused him to become even more withdrawn. Around the age of 10, Zachary became uncomfortable wearing any kind of clothing that revealed his body. For example, he started to wear boys' athletic shorts and t-shirts instead of girls' bathing suits when going to swim.

James and Zachary's other parents did not initially understand why he was withdrawn or why he was uncomfortable with his body.

55. When Zachary was 11 years old, he began referring to himself using "he" and "him" pronouns. In response, some of his friends mirrored his use of male pronouns, which brought Zachary a greater sense of self-awareness and self-acceptance, allowing him to feel more at ease and happy. It also gave him the confidence he needed to tell his parents that he is transgender. Both sets of parents were supportive of Zachary, using his chosen name and male pronouns.

56. Zachary's social transition has been very positive for him. He uses a chest binder and appears and dresses like other boys his age. Since he came out, Zachary has blossomed into a happier and more outgoing child.

57. In October 2021, after completing appropriate mental health and other medical evaluations, Zachary began puberty-blocking medication prescribed by his pediatrician with the support of both sets of plaintiffs. He recently had an appointment to start the assessment process for hormone therapy at Children's Hospital of Alabama in Birmingham.

58. Continuing to receive puberty-blockers and progressing with medical treatments for his gender dysphoria, as deemed appropriate by his treating providers, is essential for Zachary's mental health. If the Act were enforced, Zachary's parents would no longer be able to rely on—or follow—the advice of qualified and trusted

healthcare providers to make decisions that keep Zachary healthy and safe. Zachary's parents know that if Zachary is not able to receive the medications or treatments necessary to treat his gender dysphoria, his life will be disrupted, and his physical and mental health will suffer.

Megan Poe and Allison Poe

59. Allison Poe is a 15-year-old transgender girl who resides with her mother, Megan Poe, in Cullman County, Alabama.

60. As a young child, Allison showed interest in girls' toys and clothing. Thinking this was a phase, her parents initially refused to buy Allison any girl toys. Without asking, Allison's grandmother bought Allison a Barbie doll. Allison was so happy and carried it everywhere.

61. When the family returned to the United States from her father's military deployment abroad, Allison would become very upset when her mother refused to buy her girls' clothes. As a compromise, Megan bought Allison a few girls' toys. Eventually, Allison's father found them and attempted to throw them away, but Allison's brother snuck them back into the house.

62. When Allison was around nine years old, her personality began to change significantly. She became withdrawn, quiet, showed signs of depression, and regularly commented that she wanted to die. She also stopped eating regularly. Allison's actions became so worrisome to Megan that she consulted with a

pediatrician. The pediatrician suggested that Allison may be transgender and referred them to the gender clinic at UAB Hospital.

63. After evaluating Allison, the team of clinicians educated Megan about what Allison was experiencing and gave her advice about how to support Allison. That visit was a turning point for Megan. She became supportive of Allison, helping her redecorate her room and buying her girls' clothes. The first time Allison came out of her room in girls' clothes, she was beaming with joy.

64. By fifth grade, many of Allison's peers had started showing the first signs of puberty, and Allison became scared about going through a male puberty. In anticipation of her starting puberty, Allison started the process to be evaluated for puberty-blocking medication.

65. About seven months ago, just as Allison was beginning high school, she was evaluated for and eventually started on estrogen. Her mental health has improved dramatically; she is confident, social, and doing well in school.

66. If the Act is allowed to go into effect, Allison's medical care will be disrupted, which would cause Allison extreme anxiety and distress. She will develop physical traits that are inconsistent with her identity as a girl that will require her to undergo otherwise avoidable surgeries in the future as an adult.

Kathy Noe and Christopher Noe

67. Christopher Noe is a 17-year-old transgender boy who resides with his mother, Kathy Noe, in Lee County, Alabama. Christopher and Kathy have deep roots in Alabama, having moved to the State just before Christopher turned 4 years old. Kathy is former active-duty military, while Christopher's father is still active-duty military and is deployed abroad.

68. Since Christopher was a toddler, he resisted attempts to dress him as a girl. For example, he refused to attend his sixth-grade graduation because doing so meant he would have to wear a dress.

69. As Christopher began to enter puberty, his distress at the changes his body was undergoing and at being made to present as female intensified.

70. When Christopher was 14, he told his mother he is transgender. Kathy found Christopher a therapist experienced in working with transgender young people. The therapist helped both Christopher and Kathy navigate the beginning stages of Christopher's transition.

71. About a year later, Christopher came out to his father as transgender. Christopher's father struggled initially, but because of his love for Christopher, his father began to accept Christopher for who he is.

72. With his father's support, Kathy took Christopher to a physician to begin the evaluation for hormone-replacement therapy. Because Kathy and

Christopher live close to the Alabama-Georgia state line, Christopher's doctors are in Columbus, Georgia. Christopher's prescriptions, however, are filled at a pharmacy in Alabama.

73. Christopher began hormone replacement therapy in March 2022. Christopher has been noticeably happier. He is bubbly and more outgoing and is confident at work and around other people.

74. If the Act is allowed to go into effect, Christopher's medical care will be disrupted, which will have devastating and irreversible physical and psychological consequences.

Dr. Rachel Koe

75. Dr. Rachel Koe is a board-certified pediatrician in southeast Alabama. Over the past decade, Dr. Koe has treated a handful of transgender patients, including one current patient for whom she provides primary care.

76. Depending on the needs of the patient, Dr. Koe has referred patients and their parents to local mental health providers as well as the gender clinic at UAB Hospital. Even after referral, Dr. Koe remains involved with her patients' care. For example, Dr. Koe's office draws blood for their patient's regular blood work in advance of appointments with the gender clinic. Additionally, she and her staff provide support to patients who need assistance in self-administering injectable medications like testosterone.

77. Dr. Koe is familiar with the standards of care for the treatment of gender dysphoria and the medical literature regarding those treatments. She has also seen the significant positive effects medical treatment for gender dysphoria has had on the health and wellbeing of her patients.

78. If the Act goes into effect, Dr. Koe would be forced to choose between complying with the Act and the medical needs of her current and any future transgender patients whose mental and physical health will deteriorate if denied ongoing medical treatment for their gender dysphoria. The Act forces Dr. Koe to violate her professional and ethical obligations as a physician by denying her patients access to a course of treatment that is evidence-based and consistent with the established standards of care.

79. Dr. Koe would also be required to curtail her speech as she would no longer be allowed to provide accurate and comprehensive information to parents and about medically necessary treatment options for gender dysphoria and would be prohibited from making referrals to specialists who could prescribe those treatments.

80. Changing her practice in those ways would also require Dr. Koe to violate her legal obligation as a Medicaid provider to not discriminate in the provision of medical care to her transgender patients. Ignoring that obligation would jeopardize her ability to provide primary medical care in rural southeast Alabama.

Jane Moe, Ph.D.

81. Dr. Jane Moe is a doctoral-level clinical child psychologist with a specialty in child development who currently practices in a hospital setting within the UAB System. Dr. Moe has been a practicing clinical psychologist for twenty years and has experience working with children and adolescents with a variety of mental health issues. For the past two years, part of Dr. Moe's practice has been dedicated to mental health treatment and evaluation of transgender young people.

82. Dr. Moe's work with transgender patients is guided by the well-established standards of care and the hospital's informed-consent protocol. Her assessment process engages both the patient and the patient's parents and requires a minimum of three to four visits. It is quite common for the assessment to require additional visits, but that determination is made on a case-by-case basis and dependent on the needs of the patient and the patient's family.

83. In order to conduct her assessment, Dr. Moe gathers information about the patient from questionnaires, rating scales, and discussions with the patient and the patient's family. Pulling from multiple sources provides Dr. Moe with the information she needs to determine whether the patient meets the diagnostic criteria for gender dysphoria as outlined in the DSM-5.

84. Once she has made, or confirmed, the diagnosis, Dr. Moe then begins taking the patient and the patient's parents through the informed-consent protocol.

As required by the protocol, she has detailed discussions about the risks and benefits of the particular medical treatment being considered by the patient and their medical provider. Because of the large amount of information that is reviewed as part of the informed-consent protocol, this discussion can occur over multiple sessions and sometimes Dr. Moe will have separate sessions with the patient and the parent(s) to give each person an opportunity to ask questions and engage with the information being provided.

85. After completing the informed-consent protocol, Dr. Moe writes a letter to the patient's medical provider detailing the results of her assessment. That letter will include, for example, an overview of the patient's mental health and, if needed, recommendations on follow up mental health care. Although the letter discusses a patient's readiness to proceed with treatment, Dr. Moe always recommends in the letter that the medical provider conduct a further assessment before initiating treatment.

86. If enforced, the Act will prevent Dr. Moe from continuing to treat transgender patients in a manner that is consistent with the applicable standards of care. She would not be able to provide the level of detailed information or engage in in-depth conversations with her transgender patients or the patient's parents about medical treatments for gender dysphoria. Practicing this way would require Dr. Moe

to violate her professional and ethical obligations. Unwilling to do so, Dr. Moe fears that she will be subject to criminal prosecution under the Act.

87. Dr. Moe is also concerned for the health and wellbeing of her patients should the Act go into effect. She has witnessed the significant distress her patients experience before starting medical treatment and the tremendous positive effects those treatments have on her patients' mental health. Without access to that critical care, Dr. Moe worries that her patients' mental health will deteriorate in ways that will interfere with their ability to function and cause lasting harm to their health and wellbeing, including developing substance use issues and increased suicidality.

Reverend Paul A. Eknes-Tucker

88. Reverend Eknes-Tucker is the Senior Pastor at Pilgrim Church in Birmingham, Alabama. The church was established in 1903 and is part of the United Church of Christ. The core tenet of the congregation is to love and support all people to be their true and authentic selves. As such, his faith compels him to support and encourage parents to love and affirm their transgender children.

89. As a pastor, Reverend Eknes-Tucker provides pastoral counseling to families of transgender children who are often uncertain about what guidance their faith can provide, as they try to figure out how to support their children who are experiencing gender dysphoria.

90. During these pastoral counseling sessions, parents of transgender children share their worries and fears as well as hopes and aspirations for their transgender children's future. Reverend Eknes-Tucker and the parents extensively discuss the application of their faith's teachings to each family's unique circumstances. He also strives to answer questions and provide information to help parents make decisions about what is best for their children, including whether to consent to particular medical treatments, by accounting for their child's spiritual wellbeing in that decision-making process.

91. This includes counseling parents to seek the advice of other professionals, such as medical providers and mental health professionals, as needed, to further assist their children.

92. If this Act comes into effect, Reverend Eknes-Tucker is concerned for the spiritual and mental wellbeing of families he has counseled because he has seen the benefits that pastoral counseling has provided the families he has worked with. Because of the content of Reverend Eknes-Tucker's pastoral counseling sessions with parents raising transgender children, he will face criminal penalties for his pastoral work as it could "cause" a transgender minor to begin medical treatments for their gender dysphoria.

CLAIMS FOR RELIEF

COUNT I

Deprivation of Substantive Due Process
Parent Plaintiffs Against Defendants in Their Official Capacities
Violation of Parent Plaintiffs' Right to Direct the Upbringing of Their Children
U.S. Const. Amend. XIV

93. Plaintiffs incorporate all preceding paragraphs of the Complaint as if set forth fully herein.

94. The Parent Plaintiffs bring this Count against all Defendants.

95. The Fourteenth Amendment to the United States Constitution protects the rights of parents to make decisions "concerning the care, custody, and control of their children." *Troxel v. Granville*, 530 U.S. 57, 66, 120 S. Ct. 2054, 147 L.Ed.2d 49 (2000). That fundamental right includes the liberty to make medical decisions for their minor children, including the right to obtain medical treatments that are recognized to be safe, effective, and medically necessary to protect their children's health and well-being.

96. The Act violates this fundamental right by preventing the Parent Plaintiffs from obtaining medically necessary care for their minor children.

97. By intruding upon parents' fundamental right to direct the upbringing of their children, the Act is subject to strict scrutiny.

98. Defendants have no compelling justification for preventing parents from ensuring their children can receive essential medical care. The Act does not advance any legitimate interest, much less a compelling one.

COUNT II
Deprivation of Equal Protection
All Plaintiffs Against Defendants in Their Official Capacities
U.S. Const. Amend. XIV

99. Plaintiffs incorporate all preceding paragraphs of the Complaint as if set forth fully herein.

100. All Plaintiffs bring this Count against all Defendants.

101. The Equal Protection Clause of the Fourteenth Amendment, enforceable pursuant to 42 U.S.C. § 1983, provides that no state shall "deny to any person within its jurisdiction the equal protection of the laws." U.S. Const. Amend. XIV, § 1.

102. The Act singles out transgender minors and prohibits them from obtaining medically necessary treatment based on their sex and transgender status.

103. The Act also treats transgender minors differently and less favorably than non-transgender minors by allowing minors who are not transgender to obtain the same medical treatments that are prohibited when medically necessary for transgender minors.

104. Under the Equal Protection Clause, government classifications based on sex are subject to heightened scrutiny and are presumptively unconstitutional.

105. Transgender-based government classifications are subject, at a minimum, to heightened scrutiny because they are also sex-based classifications.

106. Because transgender people have obvious, immutable, and distinguishing characteristics, including having a gender identity that is different than their birth sex, they comprise a discrete group. This defining characteristic bears no relation to a transgender person's ability to contribute to society. Nevertheless, transgender people have faced historical discrimination and have been unable to secure equality through the political process.

107. As such, transgender classifications are subject to strict scrutiny.

108. The Act does nothing to protect the health or well-being of minors. To the contrary, the Act undermines the health and well-being of transgender minors by denying them essential medical care.

109. The Act is not narrowly tailored to further a compelling government interest and is not substantially related to any important governmental interest. Moreover, the Act is not even rationally related to a governmental interest. Accordingly, the Act violates the Equal Protection Clause of the Fourteenth Amendment.

COUNT III
Preemption
Healthcare Provider Plaintiffs, Parent Plaintiffs, and Transgender Plaintiffs Against Defendants in Their Official Capacities
42 U.S.C. § 18116

110. Plaintiffs incorporate all preceding paragraphs of the Complaint as if set forth fully herein.

111. Healthcare Provider Plaintiffs, Parent Plaintiffs, and Transgender Plaintiffs bring this Count against all Defendants.

112. Under Section 1557 of the Affordable Care Act, "an individual shall not . . . be excluded from participation in, be denied the benefits of, or be subjected to discrimination under, any health program or activity, any part of which is receiving Federal financial assistance, including credits, subsidies, or contracts of insurance, or under any program or activity that is administered by an Executive Agency or any entity established under this title (or amendments)" on the basis of sex. 42 U.S.C. § 18116.

113. The prohibition on sex discrimination in Section 1557 of the Affordable Care Act protects transgender individuals from discrimination by healthcare providers, including physicians and hospitals.

114. The Parent Plaintiffs obtain medical care for their children, the Transgender Plaintiffs, from providers who are recipients of federal financial assistance and therefore subject to the non-discrimination requirements of Section 1557 of the Affordable Care Act.

115. The Act subjects the Transgender Plaintiffs and the Parent Plaintiffs to unlawful sex discrimination by preventing Plaintiff Parents from obtaining

medically necessary care for their children, the Transgender Plaintiffs, because of the children's transgender status and by requiring their healthcare providers to discriminate against the children because they are transgender. As such, the Act conflicts with the non-discrimination requirements of Section 1557. It also conflicts with and undermines the purposes and goals of Section 1557.

116. In addition, as providers for transgender beneficiaries of Alabama Medicaid, the Healthcare Provider Plaintiffs are recipients of federal financial assistance and therefore subject to the non-discrimination requirements of Section 1557 of the Affordable Care Act.

117. It is impossible for the Healthcare Provider Plaintiffs to continue to comply with their obligations under Section 1557 and also comply with the restrictions imposed by the Act. On the one hand, refusing to comply with the Act would bring them into compliance with Section 1557, but subject them to criminal penalties under the Act. On the other hand, complying with the Act would subject the Healthcare Plaintiffs to civil liability for discrimination under Section 1557.

118. The Act stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress, including the objective of preventing discrimination in the provision of healthcare based on sex.

119. The Healthcare Provider Plaintiffs, Parent Plaintiffs, and Transgender Plaintiffs have no adequate remedy at law to redress the wrongs alleged herein, which are of a continuing nature and will cause them irreparable harm.

120. Accordingly, the Healthcare Provider Plaintiffs are entitled to declaratory and injunctive relief.

COUNT IV
Deprivation of Free Speech
All Plaintiffs Against Defendants in Their Official Capacities
U.S. Const. Amend. I

121. Plaintiffs incorporate all preceding paragraphs of the Complaint as if set forth fully herein.

122. All Plaintiffs bring this Count against all Defendants.

123. The Free Speech Clause of the First Amendment, enforceable pursuant to 42 U.S.C. § 1983, provides that "Congress shall make no law . . . abridging the freedom of speech."

124. The First Amendment is applicable to the State of Alabama under the Fourteenth Amendment to the United States Constitution.

125. The Act creates an unlawful restriction on speech. By imposing criminal penalties on anyone who "cause[s]" any of the proscribed treatments to be performed on a minor, Defendants are punishing the Healthcare Provider Plaintiffs, the Parent Plaintiffs, and Reverend Eknes-Tucker for any speech that can be pointed to as resulting in a minor receiving any of the proscribed treatments – *e.g.*, referrals,

counseling, or discussions relating to well-established care recognized in the medical community as appropriate, safe treatment for gender dysphoria in transgender minors.

126. There is no constitutionally sufficient justification for the Act's restriction of speech. The Act is not rationally related to the furtherance of any legitimate government interest, let alone narrowly tailored to substantially advance any compelling or important government interest.

COUNT V
Deprivation of Procedural Due Process
All Plaintiffs Against Defendants in Their Official Capacities
Void for Vagueness
U.S. Const. Amend. V and XIV

127. Plaintiffs incorporate all preceding paragraphs of the Complaint as if set forth fully herein.

128. All Plaintiffs bring this Count against all Defendants.

129. Under the Due Process Clause, a criminal statue is void for vagueness if it either: (1) fails "to provide the kind of notice that will enable ordinary people to understand what conduct it prohibits" or (2) authorizes or encourages "arbitrary and discriminatory enforcement." *City of Chicago v. Morales*, 527 U.S. 41, 56 (1999).

130. Section 4(a) of the Act states, in relevant part, that "no person shall . . . cause any of the following practices to be performed upon a minor . . . ."

131. As written, the Act does not provide sufficient definiteness to ordinary people, including Plaintiffs, of what actions constitute "caus[ing]" any of the proscribed activities upon a minor.

132. The lack of definiteness in the Act encourages arbitrary and discriminatory enforcement against anyone who is aware of, refers to, discusses, talks about, recommends, or gives an opinion on a transgender person's healthcare.

RELIEF REQUESTED

WHEREFORE, Plaintiffs request that this Court:

(1) issue a judgment, pursuant to 28 U.S.C. §§ 2201-2202, declaring that the Act violates federal law for the reasons and on the Counts set forth above;

(2) temporarily, preliminarily, and permanently enjoin Defendants and their officers, employees, servants, agents, appointees, or successors from enforcing the Act;

(3) declare that the Act violates the First, Fifth, and Fourteenth Amendments to the United States Constitution;

(4) award Plaintiffs their costs and attorneys' fees pursuant to 42 U.S.C. § 1988 and other applicable laws; and

(5) grant such other relief as the Court finds just and proper.

Respectfully submitted this 19th day of April, 2022.

Melody H. Eagan (ASB-9780-D38M)
Jeffrey P. Doss (ASB-4212-R62D)
Amie A. Vague (ASB-4113-Q46I)
LIGHTFOOT, FRANKLIN & WHITE LLC
The Clark Building
400 20th Street North
Birmingham, AL 35203
205.581.0700
meagan@lightfootlaw.com
jdoss@lightfootlaw.com
avague@lightfootlaw.com

J. Andrew Pratt (ASB-3507-J56P)
Misty L. Peterson (GA Bar No. 243715) (*pro hac vice* application forthcoming)
Adam Reinke (GA Bar No. 510426) (*pro hac vice* application forthcoming)
Gilbert Oladeinbo (GA Bar No. 669340) (*pro hac vice* application forthcoming)
KING & SPALDING LLP
1180 Peachtree Street Northeast, Suite 1600
Atlanta, GA 30309
404.572.4600
apratt@kslaw.com
mpeterson@kslaw.com
areinke@kslaw.com
goladeinbo@kslaw.com

Brent P. Ray (IL Bar No. 6291911) (*pro hac vice* application forthcoming)
Abigail Hoverman Terry (IL Bar No. 6327057) (*pro hac vice* application forthcoming)
KING & SPALDING LLP

110 North Wacker Drive, Suite 3800
Chicago, IL 60606
312.995.6333
bray@kslaw.com
ahoverman@kslaw.com

Michael B. Shortnacy (CA Bar No. 277035) (*pro hac vice* application forthcoming)
KING & SPALDING LLP
633 West Fifth Street, Suite 1600
Los Angeles, CA 90071
213.443.4355
mshortnacy@kslaw.com

Asaf Orr (CA Bar No. 261650) (*pro hac vice* application forthcoming)
NATIONAL CENTER FOR LESBIAN RIGHTS
870 Market Street, Suite 370
San Francisco, CA 94102
415.392.6257
aorr@nclrights.org

Jennifer L. Levi (MA Bar No. 562298) (*pro hac vice* application forthcoming)
GLBTQ LEGAL ADVOCATES & DEFENDERS
18 Tremont, Suite 950
Boston, MA 02108
617.426.1350
jlevi@glad.org

Scott D. McCoy (FL Bar No. 1004965) (*pro hac vice* application forthcoming)
SOUTHERN POVERTY LAW CENTER
P.O. Box 12463
Miami, FL 33101

334.224.4309
scott.mccoy@splcenter.org

Diego A. Soto (AL Bar No. ASB-3626-Y61S)
SOUTHERN POVERTY LAW CENTER
400 Washington Avenue
Montgomery, AL 36104
334.604.1414
diego.soto@splcenter.org

Jessica L. Stone (GA Bar No. 275567) (*pro hac vice* application forthcoming)
SOUTHERN POVERTY LAW CENTER
150 E. Ponce de Leon Ave., Suite 340
Decatur, GA 30030
404.221.5837
jessica.stone@splcenter.org

Sarah Warbelow (MI Bar No. P66690) (*pro hac vice* application forthcoming)
Cynthia Weaver (NY Bar No. 5091848) (*pro hac vice* application forthcoming)
HUMAN RIGHTS CAMPAIGN FOUNDATION
1640 Rhode Island Ave., NW
Washington, DC 20036
202.628.4160
sarah.warbelow@hrc.org
cynthia.weaver@hrc.org

DOC. 3

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

PAUL A. EKNES-TUCKER, *Rev., et al.*,	)	
Plaintiffs,	)	
v.	)	CASE NO. 2:22cv184-RAH-SRW
KAY IVEY, *in her official capacity as Governor of the State of Alabama, et al.*,	)	
Defendants.	)	

ORDER

The Honorable Liles C. Burke, United States District Judge for the Northern District of Alabama, was previously assigned two cases substantially similar to the above-captioned case, both of which were voluntarily dismissed on April 15, 2022. By order of the Chief Judge of the United States Court of Appeals for the Eleventh Circuit, all United States District Judges in the State of Alabama may preside over cases in any of the State's three federal judicial districts. In accordance with that order, and by the authority of the Court to manage the district court docket, promote the orderly and expeditious disposition of cases, and reassign a case to a judge who presided over a prior-related case, this case is **REASSIGNED** to Judge Burke. Judge Burke shall sit by designation and preside over this case in the United States District Court for the Middle District of Alabama.

DONE, on this the 20th day of April, 2022.

R. AUSTIN HUFFAKER, JR.
UNITED STATES DISTRICT JUDGE

DOC. 7

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D.; and RACHEL KOE, M.D.,

Plaintiffs,

v.

KAY IVEY, in her official capacity as Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON, in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official capacity as District Attorney for Jefferson County,

Defendants.

Civil Action No. 2:22-cv-184-LCB

PLAINTIFFS' MOTION FOR A TEMPORARY RESTRAINING ORDER AND/OR PRELIMINARY INJUNCTION

PLAINTIFFS' MOTION FOR A TEMPORARY RESTRAINING ORDER AND/OR PRELIMINARY INJUNCTION

Plaintiffs Reverend Paul A. Eknes-Tucker; Brianna Boe, individually and on behalf of her minor son, Michael Boe; James Zoe, individually and on behalf of his minor son, Zachary Zoe; Megan Poe, individually and on behalf of her minor daughter, Allison Poe; Kathy Noe, individually and on behalf of her minor son, Christopher Noe; Jane Moe, Ph.D.; and Rachel Koe, M.D. (collectively "Plaintiffs"), hereby move the Court pursuant to Rule 65 of the Federal Rules of Civil Procedure for preliminary injunctive relief and/or a temporary restraining order preventing the enforcement of Alabama's Vulnerable Child Compassion and Protection Act (the "Act"), prior to its May 8, 2022 effective date. In addition, Plaintiffs respectfully request this Court exercise its discretion to waive the Federal Rule of Civil Procedure 65(c) security requirement. *BellSouth Telecomm., Inc. v. MCIMetro Access Transmission Servs., LLC*, 425 F.3d 964, 971 (11th Cir. 2005).

The Act makes it a Class C felony for any "person" to "engage in or cause" the performance of certain medical treatments on any minor, "if the practice is performed for the purpose of attempting to alter the appearance of or affirm the minor's perception of his or her gender or sex, if that appearance or perception is inconsistent with the minor's sex as defined by [the] act." This prohibition infringes upon the fundamental constitutional rights to parental autonomy and equal

protection, violates the right to freedom of speech, is void for vagueness, and conflicts with the Affordable Care Act.

First, the Act deprives parents of the fundamental right to obtain essential medical care for their children, in violation of the Fourteenth Amendment to the United States Constitution. Second, the Act violates the Equal Protection Clause of the Fourteenth Amendment by discriminating based on transgender status and sex. Third, the Act violates the First Amendment by criminalizing speech that would "cause" a transgender minor to receive medical treatment for gender dysphoria, thereby enacting a speech restriction that is not narrowly tailored to advance a compelling, or even legitimate, state interest. Fourth,, the Act deprives Plaintiffs of due process and violates the Fifth and Fourteenth Amendments because it fails to "define the criminal offense with sufficient definiteness that ordinary people can understand what conduct is prohibited" and encourages "arbitrary and discriminatory enforcement" by the government. *Kolender v. Lawson*, 461 U.S. 352, 357 (1983). Fifth, the Act is preempted by Section 1557 of the Affordable Care Act, 42 U.S.C. § 18116, because compliance with the Act would force covered health care providers to violate Section 1557.

As detailed more fully in the accompanying Memorandum of Law, Plaintiffs satisfy the requirements for preliminary injunctive relief and a temporary restraining order. *See McDonald's Corp. v. Robertson*, 147 F.3d 1301, 1306 (11th Cir. 1998).

If the Act is not enjoined, Plaintiffs will suffer immediate and irreparable constitutional, medical, emotional, psychological, and other harm, for which there is no adequate remedy at law. The balance of hardships also favors Plaintiffs because a preliminary injunction and temporary restraining order would preserve the status quo; the harm imposed through enforcement of the felony health care ban is far greater than any harm that could result from the preliminary injunction or temporary restraining order. In addition, the entry of a preliminary injunction and/or temporary restraining order is in the public interest.

Accordingly, and for the reasons set forth in the accompanying Memorandum of Law, Plaintiffs respectfully request that this Motion for a Temporary Restraining Order and/or Preliminary Injunction be granted without security. *See City of Atlanta v. Metro. Atlanta Rapid Transit Auth.*, 636 F.2d 1084, 1094 (5th Cir. Unit B 1981) (recognizing "an exception to the Rule 65 security requirement" for "public-interest litigation"); *BellSouth*, 425 F.3d at 971 (citing *City of Atlanta* with approval).

Respectfully submitted this 21st day of April, 2022.

/s/ Melody H. Eagan
Melody H. Eagan (ASB-9780-D38M)
Jeffrey P. Doss (ASB-4212-R62D)
Amie A. Vague (ASB-4113-Q46I)
LIGHTFOOT, FRANKLIN & WHITE LLC
The Clark Building
400 20th Street North
Birmingham, AL 35203

205.581.0700
meagan@lightfootlaw.com
jdoss@lightfootlaw.com
avague@lightfootlaw.com

J. Andrew Pratt (ASB-3507-J56P)
Misty L. Peterson (GA Bar No. 243715) (*pro hac vice* application forthcoming)
Adam Reinke (GA Bar No. 510426) (*pro hac vice* application forthcoming)
Gilbert Oladeinbo (GA Bar No. 669340) (*pro hac vice* application forthcoming)
KING & SPALDING LLP
1180 Peachtree Street Northeast, Suite 1600
Atlanta, GA 30309
404.572.4600
apratt@kslaw.com
mpeterson@kslaw.com
areinke@kslaw.com
goladeinbo@kslaw.com

Brent P. Ray (IL Bar No. 6291911) (*pro hac vice* application forthcoming)
Abigail Hoverman Terry (IL Bar No. 6327057) (*pro hac vice* application forthcoming)
KING & SPALDING LLP
110 North Wacker Drive, Suite 3800
Chicago, IL 60606
312.995.6333
bray@kslaw.com
ahoverman@kslaw.com

Michael B. Shortnacy (CA Bar No. 277035) (*pro hac vice* application forthcoming)
KING & SPALDING LLP

633 West Fifth Street, Suite 1600
Los Angeles, CA 90071
213.443.4355
mshortnacy@kslaw.com

Asaf Orr (CA Bar No. 261650) (*pro hac vice* application forthcoming)
NATIONAL CENTER FOR LESBIAN RIGHTS
870 Market Street, Suite 370
San Francisco, CA 94102
415.392.6257
aorr@nclrights.org

Jennifer L. Levi (MA Bar No. 562298) (*pro hac vice* application forthcoming)
GLBTQ LEGAL ADVOCATES & DEFENDERS
18 Tremont, Suite 950
Boston, MA 02108
617.426.1350
jlevi@glad.org

Scott D. McCoy (FL Bar No. 1004965) (*pro hac vice* application forthcoming)
SOUTHERN POVERTY LAW CENTER
P.O. Box 12463
Miami, FL 33101
334.224.4309
scott.mccoy@splcenter.org

Diego A. Soto (AL Bar No. ASB-3626-Y61S)
SOUTHERN POVERTY LAW CENTER
400 Washington Avenue
Montgomery, AL 36104
334.604.1414
diego.soto@splcenter.org

Jessica L. Stone (GA Bar No. 275567) (*pro hac vice* application forthcoming)
SOUTHERN POVERTY LAW CENTER
150 E. Ponce de Leon Ave., Suite 340
Decatur, GA 30030
404.221.5837
jessica.stone@splcenter.org

Sarah Warbelow (MI Bar No. P66690) (*pro hac vice* application forthcoming)
Cynthia Weaver (NY Bar No. 5091848) (*pro hac vice* application forthcoming)
HUMAN RIGHTS CAMPAIGN FOUNDATION
1640 Rhode Island Ave., NW
Washington, DC 20036
202.628.4160
sarah.warbelow@hrc.org
cynthia.weaver@hrc.org

CERTIFICATE OF SERVICE

I certify that on this 21st day of April, 2022, I filed the foregoing with the Clerk of Court. I further certify that I will cause a copy of this Motion and accompanying Memorandum and Exhibits to be served along with a copy of the Summons and Complaint by delivering a copy to the following Defendants, or to their respective agents who are authorized by law to receive service of process, pursuant to Fed. R. Civ. P. 4:

Kay Ivey
The Office of Alabama Governor
600 Dexter Avenue
Montgomery, Alabama 36130

C. Wilson Baylock
District Attorney for Cullman County
500 2nd Avenue SW
Cullman, Alabama 35055

Daryl D. Bailey
District Attorney for Montgomery County
251 South Lawrence Street
Montgomery, Alabama 36014

Steve Marshall
Attorney General, State of Alabama
501 Washington Avenue
Montgomery, Alabama 36104

Jessica Venitere
District Attorney for Lee County
2311 Gateway Drive #111
Opelika, Alabama 36801

Tom Anderson
District Attorney for 12th Judicial Circuit
1065 E. McKinnon Street
New Brockton, Alabama 36351

Danny Carr
District Attorney for Jefferson County
810 Richard Arrington, Jr. Blvd. N., Suite 105
Birmingham, AL 35203

/s/ Melody H. Eagan
Attorney for Plaintiffs

DOC. 8

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D.; and RACHEL KOE, M.D.,

Plaintiffs,

v.

KAY IVEY, in her official capacity as Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON, in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official capacity as District Attorney for Jefferson County,

Defendants.

Civil Action No.
2:22-cv-00184-184-LCB

Hon. Liles C. Burke

MEMORANDUM IN SUPPORT OF
PLAINTIFFS' MOTION FOR TEMPORARY
RESTRAINING ORDER & PRELIMINARY INJUNCTION

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I. INTRODUCTION

Plaintiffs are a church pastor, parents, and healthcare providers who seek to ensure that the Plaintiff children in this case receive necessary medical care. The Reverend Paul Eknes-Tucker is the Senior Pastor at a Birmingham church who has provided pastoral counseling to congregants and community members who are parents of transgender children. Brianna Boe, James Zoe, Megan Poe, and Kathy Noe (together, "Parent Plaintiffs") are parents of children who are currently receiving medical care for gender dysphoria; they are suing individually and on behalf of their children. Michael Boe, Zachary Zoe, Allison Poe, and Christopher Noe (together, "Transgender Plaintiffs") are transgender minors whose medical care will be halted or precluded by the Act. Dr. Jane Moe and Dr. Rachel Koe (together, "Healthcare Provider Plaintiffs") are healthcare providers who will be subjected to felony arrest and potential imprisonment for providing recommended medical care to their patients—care recognized as medically appropriate and necessary by every major expert medical association—if the Alabama Vulnerable Child Compassion and Protection Act (the "Act") goes into effect on May 8, 2022.

II. STATEMENT OF FACTS

A. The Act Prevents the Parent Plaintiffs from Receiving the Support They Need to Make Important Medical Decisions for their Children's Health and Well-Being.

1. Reverend Paul Eknes-Tucker

Rev. Paul Eknes-Tucker is the Senior Pastor at Pilgrim Church in Birmingham, Alabama where he has served for seven years. (*See* Declaration of Rev. Paul Eknes-Tucker ("Rev. Eknes-Tucker Decl.") ¶ 1.) A core tenet of his faith is love, respect, and support for all persons. (*Id.* ¶ 4.) In his pastoral role, he has provided counseling to congregants and community members who are the parents of transgender children. (*Id.* ¶ 5.) In those discussions, parents are often uncertain about what guidance their faith can provide as they figure out how to support their child. (*Id.*) Parents often share with Rev. Eknes-Tucker their worries and fears as well as hopes and aspirations for their transgender child's future. (*Id.* ¶ 6.) His religious faith compels him to support parents in accepting their transgender children. (*Id.*) This includes counseling parents to get help from medical and mental health professionals, when needed, to assist and care for their children and to embrace who they are. (*Id*.)

2. Brianna Boe and Her Son Michael Boe

Michael Boe is a twelve-year-old transgender boy who resides with his mother, Brianna, in Montgomery County, Alabama. (*See* Declaration of Brianna Boe ("Boe Decl.") ¶¶ 1-2.) In his early years, Michael was a happy, outgoing child.

(*Id.* ¶ 3.) At nine years old, however, Michael became depressed and anxious. (*Id.*) Michael also started struggling academically and socially. (*Id.*) Michael eventually confided in his mother that he felt as though he was not like other girls and was worried about being judged by his classmates. (*Id.* ¶ 4.) He also reported that he was being bullied in school. (*Id.*) Brianna placed Michael in a new school for the following school year and brought him to a therapist to help him with his depression. (*Id.* ¶ 5.)

Michael began to talk with his mother about his male gender identity and the distress and discomfort he was experiencing as he entered puberty and his body began to develop in ways that were inconsistent with his sense of self. (*Id.* ¶¶ 5-6.) In June 2021, Michael told his mother that he is transgender. (*Id.* ¶ 7.) With support from his family and a mental health provider experienced in working with transgender youth, Michael began to socially transition, including adopting a male name and pronouns and generally living as a boy in all aspects of his life. (*Id.* ¶¶ 7-9.)

Since Michael began to socially transition, his mood has improved greatly. (*Id.* ¶ 9.) His therapist recently recommended that Michael be evaluated for additional medical treatment to address the distress he continues to experience due to the mismatch between his body and his gender identity. (*Id.* ¶¶ 9-12.)

In February 2022, Brianna made an initial appointment for Michael at the Children's Hospital of Alabama. (*Id.* ¶ 14.) If this law goes into effect, that

appointment will be cancelled, and Michael cannot be assessed for critical medical care. (*Id.* ¶¶ 14-15.) In addition, he will continue to experience the effects of female puberty which will cause him to develop additional physical traits inconsistent with his identity as a boy and will severely exacerbate his distress. (*Id.* ¶¶ 9-12, 15.)

3. Megan Poe and Her Daughter Allison Poe

Allison Poe is a fifteen-year-old transgender girl who resides with her mother, Megan Poe, in Cullman County, Alabama. (*See* Declaration of Megan Poe ("Poe Decl.") ¶¶ 1-3.) As a young child, Allison showed interest in girls' toys and clothing. (*Id.* ¶ 4.) Thinking this was a phase, her parents initially refused to buy Allison any girl toys. (*Id.*) Without asking, Allison's grandmother bought Allison a Barbie doll. (*Id.*) Allison was so happy and carried it everywhere. (*Id.*)

When the family returned to the United States from her father's deployment abroad, Allison would become very upset when her mother refused to buy her girls' clothes. (*Id.* ¶ 5.) As a compromise and remembering Allison's response to the grandmother buying her a doll, Megan bought Allison a few girls' toys, again providing Allison some short-term relief from the despair she was experiencing. (*Id.*) When Allison was around nine years old, her personality began to change significantly. (*Id.* ¶ 9.) She became withdrawn and quiet, showed signs of depression, and regularly commented that she wanted to die. (*Id.*) Allison's actions became so worrisome to Megan that she consulted with a pediatrician. (*Id.* ¶ 10.)

The pediatrician suggested that Allison may be transgender and referred them to the gender clinic at the University of Alabama at Birmingham ("UAB") Hospital. (*Id.*)

After evaluating Allison, a team of clinicians educated Megan about what Allison was experiencing and gave her professional advice about how to support Allison. (*Id.* ¶¶ 11-12.) That visit was a turning point for Megan. (*Id.* ¶ 13.) Having a better understanding of what Allison was experiencing and receiving guidance about how to support her child's ability to thrive, Megan helped Allison redecorate her room and began buying girls' clothes for her. (*Id.* ¶ 14.) The first time Allison emerged from her room in girls' clothes she was beaming with joy. (*Id.*)

During fifth grade, in anticipation of her starting puberty, Allison was evaluated for puberty-blocking medication, which she started taking at the end of sixth grade. (*Id.* ¶¶ 18-19.) About seven months ago, just as Allison was beginning high school, she was evaluated for and eventually started on estrogen. (*Id.* ¶ 21.) Her mental health has improved dramatically; she is confident, social, and doing well in school. (*Id.* ¶ 22.) If the Act is allowed to go into effect, Allison's medical care will be disrupted, which will cause her body to start producing male hormones resulting in changes to her body inconsistent with her female identity. (*Id.* ¶ 23.) Should that happen, Allison will again experience severe distress and anxiety. (*Id.*)

4. James Zoe and His Son Zachary Zoe

James Zoe lives with his wife and son Zachary in Jefferson County, Alabama. (*See* Declaration of James Zoe ("Zoe Decl.") ¶¶ 1-2.) He is the parent of Zachary Zoe, a thirteen-year-old transgender boy who is currently in the seventh grade. (*Id.* ¶ 2.) Zachary lives part-time with his father and stepmother in Jefferson County, and part-time with his mother and stepfather in St. Clair County. (*Id.* ¶ 5.) Zachary is a bright boy with a close group of friends who is interested in video games and art. (*Id.*)

Zachary was assigned female at birth. (*Id.* ¶ 6.) As a young child, Zachary was shy and reserved. (*Id.*) Around the age of eight, Zachary began to express his dislike of wearing dresses and bright clothing. (*Id.*) Over time, Zachary started dressing in more masculine attire and became upset if people identified him as a girl. (*Id.*)

As Zachary entered puberty, the physical changes he started to experience, including breast development and menstruation, caused him to become distressed and withdrawn. (*Id.* ¶ 7.) When Zachary was eleven years old, he began referring to himself using "he" and "him" pronouns. (*Id.* ¶ 8.) As his friends began to refer to him in this way, he experienced relief from the distress he had been experiencing as well as a greater sense of self-awareness and self-acceptance. (*Id.*) Both sets of parents supported him in socially transitioning to live as a boy. (*Id.*) Since he came

out as transgender and received support from friends and family, Zachary has blossomed into a happier and more outgoing child. (*Id*. ¶ 9.)

In October 2021, after completing appropriate mental health evaluations, and with the support of his pediatrician and both sets of parents, Zachary began puberty-blockers. (*Id*. ¶ 10.) He recently had an appointment to be assessed for hormone therapy at Children's Hospital of Alabama at Birmingham. (*Id*.)

If the Act is enforced, Zachary's parents will no longer be able to rely on—or follow—the advice of qualified and trusted healthcare providers to make decisions that keep Zachary healthy and safe. (*Id*. ¶ 11.) Zachary's life will also be disrupted, and his physical and mental health will suffer. (*Id*. ¶ 13.) If he cannot remain on puberty blocking medication, Zachary's body will begin to develop in ways that are inconsistent with his identity as a boy, which will cause him severe distress. (*Id.*) It will also mean that he may have to take more serious steps in the future as an adult to treat his gender dysphoria, including, for example, having to undergo otherwise avoidable surgery. (*Id.*)

5. Kathy Noe and Her Son Christopher Noe

Christopher Noe is a seventeen-year-old transgender boy who resides with his mother, Kathy Noe, in Lee County, Alabama. (*See* Declaration of Kathy Noe ("Noe Decl.") ¶¶ 1-2.) Christopher and Kathy moved to Alabama when Christopher was

three years old. (*Id*. ¶¶ 3-4.) Kathy is former active-duty military, while Christopher's father is still active-duty military and is deployed abroad. (*Id.* ¶ 3.)

Since Christopher was a toddler, he resisted anyone's attempts to dress him as a girl. (*Id*. ¶¶ 5-6.) He even refused to attend his sixth-grade graduation because doing so meant he would have to wear a dress. (*Id*. ¶ 6.) As Christopher began to enter puberty, his distress at the changes his body was undergoing and at being made to present as female intensified. (*Id*. ¶ 12.) When Christopher was fourteen, he told his mother he is transgender. (*Id*. ¶ 8.) Kathy found Christopher a therapist experienced in working with transgender young people. (*Id*. ¶ 9.) The therapist helped both Christopher and Kathy navigate the beginning stages of Christopher's transition. (*Id*.)

About a year later, Christopher came out to his father as transgender. (*Id*. ¶ 10.) Christopher's father struggled initially, but because of his love for Christopher, his father began to accept Christopher for who he is. (*Id.*) With his father's support, Kathy took Christopher to a physician to begin the evaluation for hormone therapy. (*Id*. ¶¶ 10, 14.) Because Kathy and Christopher live close to the Alabama-Georgia state line, Christopher's doctors are in Columbus, Georgia. (*Id*. ¶ 16.) Christopher's prescriptions, however, are filled in Alabama, and Kathy gives Christopher his hormone injections at home. (*Id.* ¶¶ 15-16.)

Christopher began hormone therapy in March 2022. (*Id*. ¶ 15.) Since then, Christopher has been noticeably happier. (*Id*. ¶ 17.) He is more outgoing and confident at work and around other people. (*Id.*) If the Act is allowed to go into effect, Christopher's medical care will be disrupted, which will have devastating and irreversible physical and psychological consequences. (*Id*. ¶ 18.)

6. Dr. Jane Moe

Dr. Jane Moe is a licensed clinical psychologist who has been practicing in Alabama for twenty years and works in a hospital setting within the UAB system providing direct mental health care to children and adolescents. (*See* Declaration of Dr. Jane Moe ("Moe Decl.") ¶¶ 1-4.) For the past two years, Dr. Moe has treated approximately forty transgender young people, ranging in age from five to nineteen. (*Id*. ¶ 4.)

She follows the standard of care developed by the World Professional Association for Transgender Health ("WPATH") and a comprehensive informed-consent protocol. (*Id*. ¶ 5.) Her assessment of transgender youth involves parents as well as the patient. (*Id*. ¶¶ 5-6.) The process requires a minimum of three to four visits, which typically take place over the course of two to three months. (*Id*. ¶ 6.) The assessment is comprehensive and involves many different methods of gathering information on the patient, including discussions with the parents, to determine whether they meet the diagnostic criteria for gender dysphoria. (*Id*. ¶¶ 7-8.)

Dr. Moe also reviews with the patient and the patient's parents the risks, benefits, and ranges of medical treatment available and appropriate for treating any patient's condition. (*Id*. ¶ 9.) Dr. Moe then writes a letter to the patient's doctor detailing the results of her assessment and recommendations for continued care. (*Id*. ¶¶ 9, 11.)

For Dr. Moe, the Act means that she must either abandon her professional and ethical obligations when treating transgender patients or risk criminal penalty for providing mental health care consistent with the prevailing standards of care. (*Id*. ¶ 14.) She is deeply concerned about the effects this law will have on her patients' mental health, many of whom already experience bullying and harassment in their schools and communities. (*Id*. ¶ 15.) She is concerned that if healthcare providers are required to comply with the Act, transgender youth will be denied essential care. (*Id*. ¶ 13.) Their mental health will deteriorate, impairing their ability to function in their day-to-day lives. (*Id*. ¶ 16.) That decline in mental health will cause a cascade of negative health outcomes, including exacerbating co-occurring mental health issues, increased reliance on maladaptive coping mechanisms (*e.g.*, cutting, substance abuse), and suicidality. (*Id*.)

7. Dr. Rachel Koe

Dr. Rachel Koe is a board-certified pediatrician in southeast Alabama. (*See* Declaration of Dr. Rachel Koe ("Koe Decl.") ¶¶ 1-3.) Over the past decade, Dr. Koe

has treated a handful of transgender patients, including one current patient for whom she provides primary care. (*Id.* ¶¶ 4, 9-10.) Depending on need, Dr. Koe has referred transgender patients and their parents to local mental health providers as well as the gender clinic at UAB Hospital. (*Id*. ¶¶ 5, 9.) Even after referral, Dr. Koe remains involved with her transgender patients' care, as she does for other patients referred for specialty treatments. (*Id.* ¶¶ 6, 9.) For example, Dr. Koe's office draws blood for their transgender patient's regular blood work in advance of appointments with the gender clinic. (*Id.*) Additionally, she and her staff provide support to patients who need assistance in self-administering injectable hormone medications like testosterone. (*Id.*)

If the Act goes into effect, Dr. Koe will be forced to choose between complying with the Act and providing for the medical needs of her current and any future transgender patients. (*Id*. ¶¶ 11-13.) She knows that if she does not provide the medical treatments they need, her transgender patients' mental and physical health will deteriorate. (*Id.* ¶ 11.) Because of the Act, Dr. Koe will also be required to curtail her speech as she will no longer be allowed to provide accurate and comprehensive information to parents of transgender children and will be prohibited from making appropriate referrals. (*Id*. ¶ 12.) Changing her practice in these ways would also put Dr. Koe in jeopardy of violating her legal obligation as a Medicaid

provider not to discriminate in the provision of medical care to her transgender patients. (*Id*. ¶ 13.)

B. Transition Is the Established Course of Care for Gender Dysphoria.

Gender dysphoria is a serious medical condition that has been recognized for decades (*See* Declaration of Dr. Linda Hawkins ("Hawkins Decl.") ¶ 25; Declaration of Dr. Stephen Rosenthal ("Rosenthal Decl.") ¶¶ 23-24.) The diagnosis describes the clinical distress a transgender person feels from being made to live without any way to resolve the conflict between their assigned sex and their gender identity. (Hawkins Decl. ¶ 24; Rosenthal Decl. ¶¶ 26-27.) Gender dysphoria is a rare condition that can be experienced by both adults and youth. (Rosenthal Decl. ¶ 24.) If untreated, gender dysphoria leads to serious negative health outcomes including anxiety, severe distress, thoughts or attempts at self-harm, and in many cases, suicide. (Hawkins Decl. ¶ 39; Rosenthal Decl. ¶¶ 26, 45, 55.)

Gender dysphoria, however, is highly treatable. (Rosenthal Decl. ¶ 26.) When individuals with gender dysphoria are diagnosed and medically treated so they live consistent with their gender identity, they can survive and thrive. (Hawkins Decl. ¶ 26; Rosenthal Decl. ¶ 36.) The overall course of treatment that allows a transgender person to live consistent with their gender identity is called transition. (Rosenthal Decl. ¶ 32.) While few minors experience gender dysphoria, for those who do, being

able to transition and to receive appropriate medical care is lifesaving. (Hawkins Decl. ¶ 41; Rosenthal Decl. ¶ 45.)

For more than four decades, medical organizations have studied and created an evidence-based standard for the medical treatment of transgender patients. (*See* Declaration of Dr. Morissa Ladinsky ("Ladinsky Decl.") ¶ 7; Rosenthal Decl. ¶¶ 2-24, 27-31.) This standard confirms that transition, including puberty blockers and hormone therapy where appropriate, is the only safe and effective treatment for gender dysphoria. (Hawkins Decl. ¶ 38; Rosenthal Decl. ¶ 23.)

The specific components of a patient's transition and treatment plan are based on that individual's medical and mental health needs after comprehensive evaluation by a multidisciplinary team. (Ladinsky Decl. ¶¶ 10-12; Rosenthal Decl. ¶¶ 5, 33, 46.) Qualified professionals manage these treatments, often in a multidisciplinary setting with endocrinologists, pediatricians, and clinical psychologists. (Hawkins Decl. ¶ 29; Ladinsky Decl. ¶ 10; Rosenthal Decl. ¶¶ 5, 47-48.) The American Academy of Pediatrics has adopted this treatment protocol as safe and effective for the health and wellbeing of children and adolescents suffering from gender dysphoria. (Hawkins Decl. ¶ 25; Ladinsky Decl. ¶ 7; Rosenthal Decl. ¶ 30.)

Before a minor begins any treatment for gender dysphoria, health care providers undertake a rigorous informed consent process. (Hawkins Decl. ¶ 36; Ladinsky Decl. ¶¶ 9-10; Rosenthal Decl. ¶¶ 48-51.) Once informed consent is

obtained, there is also a great deal of parent education, counseling of parents, and communication among physicians in the treatment of transgender adolescents. (Hawkins Decl. ¶¶ 36-37; Ladinsky Decl. ¶¶ 10-12; Rosenthal Decl. ¶ 47.)

The standard of care for the treatment of gender dysphoria in minors consists of social transition and related medical interventions that allow transgender youth to live comfortably consistent with their gender identity. (Hawkins Decl. ¶¶ 27-29; Rosenthal Decl. ¶ 32.) A young person's social transition can include adopting a new name and pronouns, changing clothes and physical appearance, and correcting identity documents. (Hawkins Decl. ¶¶ 27-29; Rosenthal Decl. ¶ 32.) Medical interventions, which may be pursued concurrently with a social transition, can involve the use of puberty-blocking medication, and for older adolescents, hormone therapy. (Hawkins Decl. ¶ 29; Rosenthal Decl. ¶¶ 35-41.) Although transgender adults may pursue surgical treatment, surgery is rarely indicated for transgender minors. (Rosenthal Decl. ¶ 46.)

After the onset of puberty, minors diagnosed with gender dysphoria may be prescribed puberty-blocking medications to prevent them from continuing to undergo puberty in their birth sex and developing permanent physical characteristics that conflict with their gender identity. (*Id*. ¶¶ 35-38.) Puberty-blocking medications work by pausing endogenous puberty at whatever stage it is when the treatment begins, limiting the influence of a person's endogenous hormones on their body.

(*Id*. ¶ 36.) For example, a transgender girl on puberty-blocking medications would not experience the physical changes caused by testosterone, including facial and body hair, male muscular development, an Adam's apple, or masculinized facial structures. (*Id*.) Similarly, a transgender boy would not experience breast development, menstruation, or widening of the hips. (*Id*.)

Treatment with puberty-blocking medications is reversible, meaning that if a minor stops taking the medication, puberty in the minor's birth sex resumes. (*Id.* ¶¶ 38-39.) In addition to alleviating gender dysphoria and supporting a child's social transition, puberty-blocking medications may eliminate the need for future surgical treatments to treat ongoing gender dysphoria as an adult, such as male chest reconstruction surgery, electrolysis of facial and body hair, and feminizing facial surgeries. (*Id.* ¶¶ 36-37, 44.) Banning puberty-blocking medications for these youth may require them to undergo future surgeries as adults that they could otherwise avoid. (*Id*.).

Later in adolescence, a transgender young person may be prescribed hormone therapy when doing so is medically indicated. (*Id*. ¶ 39.) Before such therapy begins, a mental health professional must: (1) confirm the persistence of gender dysphoria; (2) assess any coexisting psychological, medical, or social problems that could interfere with treatment have been addressed and the minor's situation and functioning are stable enough to start treatment; and (3) verify that the minor has

sufficient mental capacity to understand the consequences of the treatment. (*Id*. ¶¶ 48-51; Hawkins Decl. ¶ 36; Ladinsky Decl. ¶¶ 9-11.) A pediatric endocrinologist or other medical doctor must also consent to and monitor the treatment plan. (Ladinsky Decl. ¶ 13.) With this treatment, a transgender minor would have the same typical levels of testosterone/estrogen as a non-transgender peer. (Rosenthal Decl. ¶ 39.)

The World Professional Association for Transgender Health developed the standard of care, which represents an expert consensus based on the best available science, on transgender healthcare. (Ladinsky Decl. ¶ 7; Rosenthal Decl. ¶¶ 28-29.) The American Medical Association, American Academy of Pediatrics, American Psychiatric Association, American Psychological Association, Pediatric Endocrine Society, and the Endocrine Society all follow the World Professional Association for Transgender Health Standards of Care. (Ladinsky Decl. ¶ 7; Dr. Rosenthal Decl. ¶ 30.)

The diagnosis and treatment of gender dysphoria is an established part of the curriculum in medical schools across the United States. (Ladinsky Decl. ¶ 8.) Alabama, for example, requires all physicians to be knowledgeable about transgender medicine to pass medical board exams. (*Id*.)

C. The Alabama Vulnerable Child Compassion and Protection Act

On April 8, 2022, Defendant Governor Kay Ivey signed the Alabama Vulnerable Child Compassion and Protection Act (the "Act") into law. The Act prohibits any person, including a parent or a doctor, from obtaining or providing medical treatments consistent with the current medical standard of care, for a transgender minor. Unless enjoined, the Act will become effective on May 8, 2022.

The Act states in relevant part:

> Section 4. (a) Except as provided in subsection (b), no person shall engage in or cause any of the following practices to be performed upon a minor if the practice is performed for the purpose of attempting to alter the appearance of or affirm the minor's perception of his or her gender or sex, if that perception is inconsistent with the minor's sex as defined in this act:
>
> (1) Prescribing or administering puberty blocking medication to stop or delay normal puberty.
>
> (2) Prescribing or administering supraphysiologic doses of testosterone or other androgens to females.
>
> (3) Prescribing or administering supraphysiologic doses of estrogen to males.
>
> (4) Performing surgeries that sterilize, including castration, vasectomy, hysterectomy, oophorectomy, orchiectomy, and penectomy.
>
> (5) Performing surgeries that artificially construct tissue with the appearance of genitalia that differs from the individual's biological sex, including metoidioplasty, phalloplasty, and vaginoplasty.
>
> (6) Removing any healthy or non-diseased body part or tissue, except for a male circumcision.

Ala. Vulnerable Child Compassion and Protection Act, S.B. 184, No. 2022-289, § 4(a) (Ala. 2022). A violation of this provision is a Class C felony punishable by up to 10 years imprisonment and fines up to $15,000. *Id.* § 4(c); ALA. CODE §§ 13A-5-6, 13A-5-11.

III. ARGUMENT

To obtain a preliminary injunction, a movant must show: "(1) it has a substantial likelihood of success on the merits; (2) irreparable injury will be suffered unless the injunction issues; (3) the threatened injury to the movant outweighs whatever damage the proposed injunction may cause the opposing party; and (4) if issued, the injunction would not be adverse to the public interest." *Jones v. Governor of Fla.*, 950 F.3d 795, 806 (11th Cir. 2020) (citing *Siegel v. LePore*, 234 F.3d 1163, 1176 (11th Cir. 2000) (en banc)). "[A]ll of the well-pleaded allegations of [the] complaint and uncontroverted affidavits filed in support of the motion for a preliminary injunction are taken as true." *Elrod v. Burns*, 427 U.S. 347, 350 n.1 (1976).

A temporary restraining order may be imposed "to preserve the court's ability to make a meaningful ruling on the merits," which "often requires preserving the status quo." *W. Ala. Women's Ctr. v. Williamson*, 120 F. Supp. 3d 1296, 1320 (M.D. Ala. 2015). To obtain a temporary restraining order, the movant must show: "(1) a substantial likelihood of ultimate success on the merits; (2) the TRO is necessary to

prevent irreparable injury; (3) the threatened injury outweighs the harm the TRO would inflict on the non-movant; and (4) the TRO would serve the public interest." *Ingram v. Ault*, 50 F.3d 898, 900 (11th Cir. 1995).

These factors strongly support entry of a preliminary injunction in this case. In the event that the Court is unable to make a ruling on the merits of Plaintiffs' preliminary injunction motion before the May 8, 2022 effective date of the Act, these factors also warrant entry of a temporary restraining order because "it is in the public interest to preserve the status quo and give the court an opportunity to evaluate fully the lawfulness of [the Act] without subjecting the plaintiffs, their patients, or the public at large to any of its potential harms." *Planned Parenthood Se., Inc. v. Bentley*, 951 F. Supp. 2d 1280, 1290 (M.D. Ala. 2013).

A. Plaintiffs Will Likely Succeed on the Merits of Their Claims Because the Act Is Unconstitutional.

Plaintiffs have a substantial likelihood of success on the merits of their claims. The Act infringes upon their constitutional rights to parental autonomy and equal protection, violates the right to freedom of speech, and is void for vagueness. It also conflicts with the Affordable Care Act ("ACA"), 42 U.S.C. § 18001, *et seq*. (2010).

1. The Act Infringes on Parental Autonomy by Preventing Parents from Obtaining Essential Medical Care for their Children (Count I).

The Act violates the fundamental right of the Parent Plaintiffs to obtain essential medical care for their children. The Fourteenth Amendment to the United

States Constitution protects parents' rights to make decisions "concerning the care, custody, and control of their children," based on a "presumption" that "fit parents act in the best interests of their children." *Troxel v. Granville*, 530 U.S. 57, 66, 68-69 (2000). This right is "perhaps the oldest of the fundamental liberty interests recognized by this Court." *Id*. at 65; *see also Parham v. J.R.*, 442 U.S. 584, 602 (1979) (collecting cases to demonstrate that the Court has long recognized the importance of parental rights, including *Prince v. Massachusetts*, 321 U.S. 158, 166 (1944), *and Pierce v. Soc'y of the Sisters of the Holy Names of Jesus & Mary*, 268 U.S. 510, 535 (1925)); *May v. Anderson*, 345 U.S. 528, 533 (1953) (recognizing that parental rights are "far more precious . . . than property rights"). Because this right is fundamental, any substantial infringement of parental autonomy is subject to strict scrutiny. *Lofton v. Sec'y of Dep't of Child. & Fam. Servs.*, 358 F.3d 804, 815 (11th Cir. 2004); *see also Troxel*, 530 U.S. at 80 (Thomas, J., concurring).

A parent's ability to seek and obtain appropriate medical treatment to ensure the health and wellbeing of their child is a core aspect of this fundamental right. The Eleventh Circuit has explained that the Due Process Clause prohibits a state, "concerned for the medical needs of a child," from "willfully disregard[ing] the right of parents to generally make decisions concerning the treatment to be given to their children." *Bendiburg v. Dempsey*, 909 F.2d 463, 470 (11th Cir. 1990). "[P]arents have the right to decide free from unjustified governmental interference in matters

concerning the growth, development and upbringing of their children." *Id.* (quoting *Arnold v. Bd. of Educ. of Escambia Cty.*, 880 F.2d 305, 313 (11th Cir. 1989)).

The Act fails constitutional review because it negates, without justification, parents' fundamental right to seek established medical care for their transgender children. Indeed, the Act criminalizes medical care: (1) recommended to the Parent Plaintiffs as appropriate for their children by their medical providers, and (2) recognized by the American Medical Association, American Academy of Pediatrics, American Psychiatric Association, American Psychological Association, Pediatric Endocrine Society, and the Endocrine Society as the only effective treatment for their children. *See Brandt v. Rutledge*, 551 F. Supp. 3d 882, 892 (E.D. Ark. 2021), *appeal docketed*, No. 21-2875 (8th Cir. Apr. 19, 2022) (finding that "Parent Plaintiffs have a fundamental right to seek medical care for their children and, in conjunction with their adolescent child's consent and their doctor's recommendation, make a judgment that medical care is necessary"). The Act prevents parents even from *seeking* expert medical advice by imposing criminal penalties on anyone who "causes" the proscribed treatments to be performed on a transgender minor—language that would encompass consultations with healthcare providers who recommend transition if doing so results in a parent obtaining medical care for their child. SB 184 § 4(a). This categorical, sweeping ban—like any ban on

parents' ability to seek established medical care for a serious medical condition—is unconstitutional.

As set forth below, none of the State's asserted justifications for this intrusion on parental rights has merit. Contrary to the State's assertion, the Act jeopardizes children's health and safety; it does not protect it. *Brandt*, 551 F. Supp. 3d at 893 (holding that a similar Arkansas law likely violated "a fundamental parental right" and likely would fail strict scrutiny because the State could not show that the law served the stated goal of protecting children).

2. The Act Violates Equal Protection by Barring Medical Treatments for Transgender Minors (Count II).

The Act singles out transgender minors in order to deny them medical care, including denying them the very same medications available to non-transgender minors. Because the Act discriminates on the basis of transgender status and sex, heightened scrutiny is required. Because the State's asserted rationales for the ban lack merit, Plaintiffs have a substantial likelihood of proving that the Act violates the Equal Protection Clause.

a. <u>The Act is Subject to Heightened Scrutiny Under Well-Established Precedent.</u>

The Act's discrimination against transgender people is apparent on its face. The Act bans medical care for minors whose "perception of [their] gender or sex . . . is inconsistent with the minor's sex" at birth—*i.e.*, for minors who are transgender.

SB 184 § 4(a). Elsewhere the Act refers to "individuals, including minors, who experience discordance between their sex and their internal sense of identity." *Id.* § 2(2)-(4). The Act's description of its targeted group—those whose perception or internal sense of their sex differs from their sex at birth—coincides exactly with the definition of a transgender person. It matters not that the Act does not use the word "transgender," any more than it would matter if a law criminalizing same-sex intimacy did not use the word "lesbian" or "gay." Under settled law, a statute that classifies based on conduct or characteristics that either define or are closely correlated with a particular group facially discriminates against that group. *See, e.g.*, *Christian Legal Soc'y v. Martinez*, 561 U.S. 661, 689 (2010) (holding that a club's exclusion of people because they engaged in same-sex conduct was discrimination based on sexual orientation); *Lawrence v. Texas*, 539 U.S. 558, 575 (2003) ("When homosexual conduct is made criminal by the law of the State, that declaration in and of itself is an invitation to subject homosexual persons to discrimination . . . ."); *id.* at 583 (O'Connor, J., concurring in judgment) (stating that a law targeting conduct "closely correlated with being homosexual" is "directed toward gay persons as a class"); *cf. Bray v. Alexandria Women's Health Clinic*, 506 U.S. 263, 270 (1993) ("A tax on wearing yarmulkes is a tax on Jews.").

By discriminating against transgender people, the Act also discriminates based on sex. Without question, the Act singles out transgender minors for disparate

treatment. Both the Supreme Court and the Eleventh Circuit have held that discrimination because a person is transgender is based on sex. *See Bostock v. Clayton Cty.*, 140 S. Ct. 1731, 1741 (2020) (holding that "it is impossible to discriminate against a person for being homosexual or transgender without discriminating against that individual based on sex"); *Glenn v. Brumby*, 663 F.3d 1312, 1316 (11th Cir. 2011) (holding that "discriminating against someone on the basis of his or her gender non-conformity constitutes sex-based discrimination under the Equal Protection Clause").

Because the Act discriminates based on transgender status and sex, it is subject to heightened scrutiny under the Equal Protection Clause. Federal courts across the country have held that discrimination based on transgender status warrants heightened scrutiny, as it meets the criteria for suspect classification established in *Frontiero v. Richardson*, 411 U.S. 677, 686 (1973): transgender people have suffered a history of discrimination; being transgender is an immutable trait and one that is unrelated to a person's ability to participate in or contribute to society; and transgender people lack the political power to achieve full equality through the political process.[1]

[1] *See, e.g.*, *Whitaker v. Kenosha Unified Sch. Dist. No. 1*, 858 F. 3d 1034, 1051 (7th Cir. 2017); *Smith v. City of Salem*, 378 F.3d 566, 572 (6th Cir. 2004); *Toomey v. Arizona*, No. CV-19-00035-TUC-RM, 2019 WL 7172144, at *5 (D. Ariz. Dec. 23, 2019); *Stone v. Trump*, 400 F. Supp. 3d 317, 355 (D. Md. 2019); *F.V. v. Barron*, 286 F. Supp. 3d 1131, 1145 (D. Idaho 2018); *M.A.B. v. Bd. of Educ. of Talbot Cty.*, 286 F. Supp. 3d 704 (D. Md. 2018); *Board of Educ. of the Highland*

In *Brumby*, the Eleventh Circuit held that discrimination because a person is transgender is discrimination based on sex and warrants heightened scrutiny for that reason. As the court explained: "A person is defined as transgender precisely because of the perception that his or her behavior transgresses gender stereotypes." 663. F.3d at 1316. Accordingly, "discrimination on this basis is a form of sex-based discrimination that is subject to heightened scrutiny under the Equal Protection Clause." *Id*. at 1319.

Whether the Act is analyzed as discrimination based on transgender status or sex, the State, at a minimum, "must show at least that the [challenged] classification serves important governmental objectives and that the discriminatory means employed are substantially related to the achievement of those objectives." *United States v. Virginia*, 518 U.S. 515, 516 (1996) (quotations omitted) (modifications in original). The justification must be "exceedingly persuasive." *Id*. The "burden of justification is demanding, and it rests entirely on the State." *Id*. Neither the State's asserted interest nor the alleged relationship between the interest and the discriminatory classification may "rely on overbroad generalizations." *Sessions v. Morales-Santana*, 137 S. Ct. 1678, 1689, 1692 (2017). Nor may the State "hypothesiz[e] or inven[t]" its interests "*post hoc* in response to litigation"—they

Local Sch. Dist. v. U.S. Dep't of Educ., 208 F. Supp. 3d 850, 874 (S.D. Ohio 2016); *Norsworthy v. Beard*, 87 F. Supp. 3d 1104, 1119 (N.D. Cal. 2015); *Adkins v. City of New York*, 143 F. Supp. 3d 134, 139 (S.D.N.Y. 2015).

must be the actual goals the policy was intended to advance at the time it was created. *Id.* at 1696–97 (quoting *Virginia*, 518 U.S. at 533).

b. Defendants Cannot Establish the State's Asserted Interest Serves Important Governmental Objectives or the Act Is Substantially Related to the Achievement of those Objectives.

The Act prohibits parents from obtaining treatments for their children that are the standard of care for gender dysphoria. Decades of evidence support the safety and efficacy of transition, including the use of puberty-blocking medication and hormone therapy, for treating gender dysphoria in adolescents. (Hawkins Decl. ¶ 25; Ladinsky Decl. ¶ 7; Rosenthal Decl. ¶¶ 17, 27-31.) Barring those treatments for transgender youth deprives them of medically necessary care and puts them at serious risk of mental health issues, self-harm, and suicide. *See Brandt*, 551 F. Supp. 3d at 891-92 (finding similar bill banning medical treatment for transgender adolescents did not meet heightened scrutiny review, and "would not even withstand rational basis scrutiny" because "[g]ender-affirming treatment is supported by medical evidence that has been subject to rigorous study" and "[e]very major expert medical association recognizes that gender-affirming care for transgender minors may be medically appropriate and necessary to improve the physical and mental health of transgender people"); *see also* Hawkins Decl. ¶ 46; Ladinsky Decl. ¶ 15; Rosenthal Decl. ¶¶ 45, 55, 57. The Act also increases the likelihood that transgender adolescents will eventually require major surgeries to

reverse bodily changes that could have been avoided by the well-established non-surgical treatments the Act criminalizes. (Rosenthal Decl. ¶ 37.)

The Act purports to advance the objective of protecting transgender minors. Nevertheless, the State's asserted justifications for the Act have no basis in medical science and undermine, rather than advance, the Act's purported goals. They cannot survive even a cursory review, much less the demanding scrutiny required by this case.

i. The treatments are effective and well-established.

Contrary to the Act's assertion, the treatments provided to transgender adolescents with gender dysphoria are effective and based on an established standard of care. As the Act recognizes, there are youth who "experience discordance between their sex and their internal sense of identity," and who, as a result, "experience severe psychological distress," known as "gender dysphoria." SB 184 § 2(2). As the Act also acknowledges, there is an established course of care and treatment for these young people that includes social transition and, where appropriate, puberty blocking medication and hormone therapy. *Id.* § 2(7)-(8).

The Act claims that these treatments are ineffective, but that is incorrect. The Act cites unnamed "studies" that purportedly show that "hormonal and surgical interventions often do not resolve the underlying psychological issues affecting the individual." *Id.* § 2(14). In fact, decades of substantial scientific evidence show that

treatment dramatically improves mental health outcomes for transgender youth, including reducing rates of suicidal ideation and suicide attempts, which are significantly higher among transgender adolescents when compared to their non-transgender peers. (Hawkins Decl. ¶¶ 38, 41; Ladinsky Decl. ¶ 15; Rosenthal Decl. ¶¶ 26, 53-55.)

Transition, including puberty blocking medication and hormone therapy where appropriate, is the standard of care for treating gender dysphoria and has been endorsed by the mainstream medical community in the United States, including the American Medical Association, the American Academy of Pediatrics, and the Endocrine Society, all of which have determined that the care is safe and effective. (Ladinsky Decl. ¶ 7; Rosenthal Decl. ¶ 30.) The Act's assertions that the treatment is "unproven," "poorly studied," and "experimental," SB 184 § 2(11), are unfounded. (Hawkins Decl. ¶¶ 38, 41; Ladinsky Decl. ¶¶ 7-8; Rosenthal Decl. ¶¶ 26, 53-55.)

ii. The treatments are necessary.

The Act's claim that most adolescents with gender dysphoria will "outgrow" their transgender identities is incorrect. *Id.* § 2(4). In contrast, the evidence overwhelmingly shows that transgender adolescents who are appropriately identified, diagnosed, and prescribed treatment continue to live consistent with their gender identity as adults and lead happy and fulfilling lives. (Hawkins Decl. ¶ 26;

Rosenthal Decl. ¶¶ 53-54, 36; Moe Decl. ¶ 16; Koe Decl. ¶¶ 5-7.) In the past, research tracking a wide range of gender-nonconforming children (including tomboyish girls and feminine boys) found that many of these children grew up to identify as lesbian or gay rather than transgender. (Hawkins Decl. ¶ 22.) However, none of these older studies focused on the much smaller, discrete, and clearly identifiable group of children with gender dysphoria whose persistent, insistent, and consistent cross-gender identification continues into adolescence. (*Id.*) More recent research has focused on this specific group of children and found that the likelihood of this group "outgrowing" their transgender identity in adolescence or adulthood is virtually nil. (*Id.*)

The Act also asserts that "[t]he cause of the individual's impression of a discordance between sex and identity is unknown," SB 184 § 2(3), but that is incorrect. In fact, substantial evidence has shown that gender identity has a strong biological foundation and is impervious to external factors. (Rosenthal Decl. ¶ 15.)

Contrary to the Act's assertion, doctors take great care in making a diagnosis of gender dysphoria and follow detailed procedures for both confirming the diagnosis and prescribing a treatment plan, taking a multidisciplinary approach that includes both medical and mental health specialists. The Act incorrectly states that the diagnosis is based "exclusively on the individual's self-report of feelings and beliefs." SB 184 § 2(3). In fact, mental health providers who diagnose youth with

gender dysphoria do so based on a comprehensive evaluation. (Ladinsky Decl. ¶ 10; Rosenthal Decl. ¶ 48; Moe Decl. ¶¶ 6-8.) Any prescribed treatments, including puberty blocking medication and hormone therapy, are undertaken only after thorough assessment and discussion with parents and youth patients, and only after ensuring that all persons involved understand the need for treatment along with any attendant risks, just as in other medical situations where medication may be required to treat a condition. (Ladinsky Decl. ¶¶ 9-11; Rosenthal Decl. ¶¶ 48-51.)

In sum, the Act's claim that the banned treatments are not necessary for the affected children ignores the consensus of medical experts and overwhelming evidence to the contrary. It is inappropriate for the legislature to look at the entire gender-nonconforming youth population, many of whom do not and will never experience gender dysphoria, and bar a medically discrete subset of them from receiving essential medical care. Doing so is like denying life-saving brain cancer treatment recommended by the medical community because most headaches resolve with aspirin. For adolescent patients properly identified as being transgender, a "wait-and-see approach" is harmful and may even be lethal. (Hawkins Decl. ¶ 41; Rosenthal Decl. ¶ 55.)

iii. The treatments are safe.

The Act incorrectly claims that the treatments it bans are unsafe and that transgender adolescents and their parents are unable to assess their risks and benefits.

First, the State's assertion that the treatments are unsafe because they involve off-label use of medications approved by the Food and Drug Administration ("FDA") is unfounded. In fact, many established medical treatments involve off-label uses of FDA-approved medications. (Rosenthal Decl. ¶ 49.) "Off-label" refers to use of medication that has been FDA approved, but not for all condition for which it may be effective. [2] The off-label use of medications for children is quite common and sometimes necessary, because an "overwhelming number of [FDA-approved] drugs" have no FDA-approved instructions for use in pediatric patients.[3]

The American Academy of Pediatrics specifically approves the off-label use of drugs:

> The purpose of off-label use is to benefit the individual patient. Practitioners use their professional judgment to determine these uses. As such, the term "off-label" does not imply an improper, illegal, contraindicated, or investigational use. Therapeutic decision-making must always rely on the best available evidence and the importance of the benefit for the individual patient.[4]

This asserted rationale for the ban also conflicts with the established public policy of this State. On April 1, 2021, the Alabama Senate passed a resolution endorsing the widespread practice of prescribing FDA-approved medications for

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[2] *See* Am. Acad. Pediatrics Comm. Drugs, Off-Label Use of Drugs in Children, 133 Pediatrics 563-67 (2014).

[3] *Id.*

[4] *Id.*

off-label uses to treat COVID-19. In contrast to the alleged justifications for the Act, the Senate Resolution states: "we hereby recognize the sanctity of the physician/patient relationship and that a duly licensed physician should be allowed to prescribe any FDA approved medication for any condition that the physician and patient agree would be beneficial for treatment of the patient without interference by government or private parties." AL SJR 82 (2021). This policy affirms the ability of medical providers to prescribe FDA-approved mediation for "any condition." There is no legitimate reason, much less an important one, to adopt a different rule for medications used to treat transgender patients.

Second, contrary to the Act's assertion, the medications used to treat gender dysphoria, including puberty blockers and hormones, are safe. (Rosenthal Decl. ¶¶ 23, 31, 55.) Puberty-blocking medication has been used for decades to treat a medical condition known as "precocious puberty." (*Id.* ¶ 42.) Hormone therapy is often used to treat medical conditions experienced by adolescents including painful menstruation, amenorrhea, and even serious acne conditions. As the Act itself acknowledges, puberty blocking medication is also used to treat "verified disorder[s] of sexual developments," SB 184 § 4(b)(2), often referred to as intersex conditions. Although no medication can be shown to have zero risks, puberty blocking medication and hormones are considered very safe and well within acceptable risk factors for approved medication for minors. (Rosenthal Decl. ¶¶ 23. 31, 55.)

To the extent there are low-level risks, as there are with any medication, Alabama can offer no justification why puberty blocking medication and hormone therapy should be banned for use by transgender minors as "unsafe" but permitted for treatment of minors with other medical conditions. If the State believed these treatments to be unsafe, it would have banned them for all minors, not just the Transgender Plaintiffs. As the Eastern District of Arkansas found in *Brandt*, this insistency strongly suggests that the State's "goal in passing [the Act] was not to ban a treatment" but rather "to ban an outcome [the provision of supportive care to transgender minors] that the State deems undesirable." *Brandt*, 551 F. Supp. 3d at 891. The Act violates the Equal Protection clause under even the lowest standard of review. *Id*. (finding Arkansas' "health concerns regarding the risks of gender transition procedures . . . pretextual" because Arkansas did not prohibit the same procedures "for all patients under 18 regardless of gender identity"); *Eisenstadt v. Baird*, 405 U.S. 438, 454-55 (1972) (holding law that barred prescription of contraceptives to unmarried people violated the Equal Protection Clause because the law provided "dissimilar treatment for married and unmarried persons who are similarly situated").

The Act's claim that transgender adolescents and their parents are unable to assess the risks of these treatments, *see* SB 184 § 2(10), is similarly arbitrary and without support. As discussed previously, doctors who prescribe puberty blocking

medication or hormone therapy do so only after ensuring that the young person and their parents understand both the risks and benefits of the treatments and are able to make an informed choice, as doctors do when they prescribe any medication. (Hawkins ¶ 36; Ladinsky ¶¶ 9-10; Rosenthal Decl. ¶¶ 47-51.) Alabama law acknowledges that minors fourteen and older are generally able to consent to medical treatment. ALA. CODE § 22-8-4. There is no reason to impose a different rule simply because the minors are transgender.

iv. Minors who stop taking puberty blocking medication or hormone therapy will resume puberty in their birth sex.

The Act also mischaracterizes the effects of puberty blocking medication and hormone therapy. Contrary to the unsupported assertion in the findings, if an adolescent stops taking puberty blocking medication or hormone therapy, the production of endogenous hormones and puberty in the child's birth sex will resume. (Rosenthal Decl. ¶¶ 38, 40.). That is a primary reason why the Plaintiffs are so distressed about the law: Without the treatment they need, their physical development will revert to that associated with their birth sex.

To be sure, promoting the health and safety of minors is an important governmental interest. The Act, however, undermines, rather than promotes, that goal. Barring transgender minors from safe, effective, and established medical care determined to be necessary by their medical providers will destroy lives, including

those of the minor Plaintiffs in this case. Alabama cannot demonstrate that the Act promotes health and safety in even a rational, much less a substantial, way. Accordingly, the Plaintiffs are likely to prevail on their claim that the Act violates the Equal Protection Clause.

3. Plaintiffs Are Likely to Succeed on the Merits of Their First Amendment Claim (Count IV).

The Act also violates the First Amendment by prohibiting any "person," including physicians, healthcare professionals, or even parents, from engaging in speech that would "cause" a transgender minor to receive medical treatment for gender dysphoria. By the Act's plain terms, prohibited speech would include, among many other things: (1) a doctor detailing the benefits of medical treatment for gender dysphoria or expressing the professional opinion that a young person would likely benefit from such treatment, if such discussions result in the minor obtaining treatment; (2) a doctor or therapist referring a patient to an out-of-state provider who can offer medical care; (3) a parent facilitating or expressing support for their child's transition, or any other speech by a parent that results in a minor obtaining medical treatment, such as consenting to treatment; (4) a transgender adolescent engaging in discussions or receiving information that leads them to undergo transition-related care; and (5) a minister or religious counselor engaging in speech that leads to the minor obtaining care. By barring such speech, the Act prevents any person in the State of Alabama from speaking about medically accepted treatments for gender

dysphoria based on the content of those conversations. As a content-based and viewpoint discriminatory regulation of speech, the Act is subject to strict scrutiny, which it fails.

Courts ordinarily apply strict scrutiny when analyzing the constitutionality of content or viewpoint-based restrictions on speech. *See, e.g.*, *Reed v. Town of Gilbert*, 576 U.S. 155, 171 (2015); *Wollschlaeger v. Governor*, 848 F.3d 1293, 1308 (11th Cir. 2017). Content-based laws "target speech based on its communicative content." *Reed*, 576 U.S. at 163. If enforcement authorities must "examine the content of the message that is conveyed" to know whether the law has been violated, a restriction is content-based. *McCullen v. Coakley*, 573 U.S. 464, 479 (2014). "Content-based regulations are presumptively invalid." *R.A.V. v. City of St. Paul*, 505 U.S. 377, 382 (1992).

Prohibiting parents, healthcare providers, and others from engaging in speech that would "cause" a transgender young person to receive medical treatment for gender dysphoria is a content-based regulation, as the content of the speech—support of medical care—drives whether it was the "cause" of a minor obtaining treatment. It is also a viewpoint-based restriction because only speech that encourages medical care for the minor is targeted; speech that forbids or expresses disapproval of such medical care is not punished. *Brandt*, 551 F. Supp. 3d at 893 (finding that similar Arkansas statute was "a content and viewpoint-based regulation

because it restricts healthcare professionals only from making referrals for 'gender transition procedures,' not for other purposes"); *see also Conant v. Walters*, 309 F.3d 629, 637 (9th Cir. 2002) (invalidating policy that punished doctor-patient discussions concerning medical marijuana and holding that "the policy does not merely prohibit the discussion of marijuana; it condemns expression of a particular viewpoint, i.e., that medical marijuana would likely help a specific patient"). Such speech regulations require application of strict scrutiny, which the Act cannot withstand.

To survive First Amendment review, content-based restrictions on speech must be "narrowly tailored to serve compelling state interests." *Reed*, 576 U.S. at 163. "It is rare that a regulation restricting speech because of its content will ever be permissible." *United States v. Playboy Ent. Grp., Inc.*, 529 U.S. 803, 818 (2000).

The Act cannot satisfy this demanding test. First, preventing individuals from speaking, and minors from discussing or hearing about medically necessary care does not advance Alabama's stated interest in health and safety. The Act claims to further an interest in protecting minors, yet disregards the long-standing and well-established treatment of gender dysphoria recommended by every major medical association. No court has ever held that a state advances a compelling interest by denying minors—a vulnerable group—medical treatment that is deemed necessary, safe, and effective under the relevant medical standard of care. The State's claimed

interests collapse under strict scrutiny. *See Wollschlaeger*, 848 F.3d at 1317 (holding that state's asserted interest in protecting public health by prohibiting doctors from asking patients about firearm ownership could not satisfy heightened scrutiny where "the applicable standard of care encourages doctors to ask questions about firearms").

Second, the Act is not "narrowly tailored" to advance any asserted interest in health and safety. It prohibits speaking about certain treatments only with respect to transgender youth with gender dysphoria while allowing discussion or recommendations of the same or similar treatments for non-transgender youth for any other purpose or medical condition. Such "[u]nderinclusiveness raises serious doubts about whether the government is in fact pursuing the interest it invokes, rather than disfavoring a particular speaker or viewpoint." *Brown v. Ent. Merchants Ass'n*, 564 U.S. 786, 802 (2011).

Third, the Act cannot withstand strict scrutiny because it is not the "least restrictive means of achieving a compelling state interest." *McCullen*, 573 U.S. at 478. Banning every "person" in Alabama from engaging in an entire category of protected speech—speech that is consistent with established standards of medical care and with the Parent Plaintiffs' view of what is best for their own children's health and wellbeing—is not a constitutionally permissible means of protecting health and safety. The State cannot show that its enactment of "provisions broadly

restricting truthful speech based on content" are the least restrictive means available to achieve a compelling need. *Wollschlaeger*, 848 F.3d at 1316.

Lacking a narrowly tailored means to achieve any compelling or even legitimate interest, the Act's restrictions on speech cannot satisfy even rational basis review, much less strict scrutiny. Plaintiffs have a substantial likelihood of prevailing on their free speech claim.

4. The Act Is Unconstitutionally Vague (Count V).

Under the Due Process Clause, a criminal statute like the Act is void for vagueness if it fails to "define the criminal offense with sufficient definiteness that ordinary people can understand what conduct is prohibited" and encourages "arbitrary and discriminatory enforcement" by the government. *Kolender v. Lawson*, 461 U.S. 352, 357 (1983); *see also Papachristou v. City of Jacksonville*, 405 U.S. 156, 162 (1972) (holding all persons "are entitled to be informed as to what the State commands or forbids") (quoting *Lanzetta v. New Jersey*, 306 U.S. 451, 453 (1939)).

Section 4(a) of the Act states that "no person shall . . . cause any of the following practices to be performed upon a minor" and criminalizes any such act as a felony. Yet, the Act fails to provide *any* standard to determine what an individual must do to "cause" a treatment "to be performed upon a minor." *See Kolender*, 461 U.S. at 358.

"Cause" has an incredibly broad definition: "To bring about or effect." Black's Law Dictionary (11th ed. 2019); *cf. United States v. Eckhardt*, 466 F.3d 938, 944 (11th Cir. 2006) (directing courts to consider, among other things, "dictionaries" and the "common and generally accepted meaning" of words when considering vagueness of a statute).

Therefore, the Act, as worded, could subject anyone who is aware of, refers to, discusses, talks about, recommends, or expresses an opinion about a transgender minor's healthcare to a class C felony and up to ten years imprisonment, no matter how indirect the involvement, so long as the speech or behavior has *any* effect on a minor taking a prohibited medication to treat gender dysphoria. For example, the Act could impose criminal liability on a doctor or therapist in Alabama who recommends that a transgender adolescent start or continue puberty blocking medication or hormones. It could impose criminal liability on a pastor, like Rev. Eknes-Tucker, who counsels parents to seek medical care supporting their transgender children. It could impose criminal liability on a school nurse who dispenses a puberty-blocking medication to an adolescent, or a pharmacist who fills a prescription for estrogen or testosterone for a minor—even if the nurse or pharmacist did not know the child was taking the medication to treat gender dysphoria. *See City of Chi. v. Morales*, 527 U.S. 41, 55 (1999) (finding criminal

statute that "contains no *mens rea* requirement" and "infringes on constitutionally protected rights" to be "subject to facial attack" for vagueness).

Due to this vagueness, the Act encourages arbitrary enforcement and fails to describe what one must do to avoid criminal liability. *See Lanzetta*, 306 U.S. at 453 ("No one may be required at peril of life, liberty or property to speculate as to the meaning of penal statutes.").

B. The Affordable Care Act Preempts the Act Because the Act Mandates Sex Discrimination by Healthcare Providers (Count III).

The Act is preempted by Section 1557 of the ACA. When a federal law and a state law conflict, the state law is preempted. *See, e.g.*, *Taylor v. Polhill*, 964 F.3d 975, 981 (11th Cir. 2020) (citing *Hillsborough Cty. v. Automated Med. Labs., Inc.*, 471 U.S. 707, 712 (1985)). For example, states may not impose criminal penalties or "hold a civil defendant liable under state law for conduct federal law requires." *Armstrong v. Exceptional Child Ctr., Inc.*, 575 U.S. 320, 326 (2015). Federal courts are empowered to "issue an injunction upon finding the state regulatory actions preempted." *Id.*

Federal courts recognize three categories of preemption: (1) express preemption; (2) field preemption; and (3) conflict preemption. *See Fla. State Conf. of N.A.A.C.P. v. Browning*, 522 F.3d 1153, 1167 (11th Cir. 2008). This case involves the third category, conflict preemption. "Conflict preemption . . . arises in instances

where (1) 'compliance with both federal and state regulations is a physical impossibility,' or (2) 'the challenged state law stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress.'" *Fresenius Med. Care Holdings, Inc. v. Tucker*, 704 F.3d 935, 939 (11th Cir. 2013) (quoting *Arizona v. United States*, 567 U.S. 387, 399 (2012) (citations and internal quotation marks omitted)). The Act is preempted because compliance would force covered health care providers to violate Section 1557. Because compliance with both statutes is impossible, and because enforcement of the Act would thwart the fundamental purpose of Congress in prohibiting sex discrimination by covered healthcare providers, federal law preempts the Act.

The Act prohibits Alabama doctors from providing medical care to transgender minors. But Section 1557 of the ACA prohibits such sex discrimination by health care providers receiving federal funds, including plaintiff doctors and other providers from whom plaintiff children receive their care. Section 1557 provides that no individual shall "be excluded from participation in, be denied the benefits of, or be subjected to discrimination under, any health program or activity, any part of which is receiving Federal financial assistance, including credits, subsidies, or contracts of insurance" on the basis of sex. 42 U.S.C. § 18116(a). As explained above, the Act's ban and criminalization of medications and surgeries only when provided to a transgender individual is discrimination based on sex. *See Bostock,*

140 S. Ct. at 1741; *Brumby*, 663 F.3d at 1316. Violators of Section 1557 risk losing federal funding, civil enforcement proceedings brought by the federal government, civil lawsuits, debarment from doing business with the federal government, False Claims Act lawsuits, and criminal penalties. *See*, *e.g.*, 20 U.S.C. § 1682; *see also Jolley v. Riverwoods Behav. Health, LLC*, No. 1:21-CV-00561-WMR, 2021 WL 6752161, at *5-6 (N.D. Ga. Aug. 30, 2021) (slip op.) (denying motion to dismiss private claim of Section 1557 ACA discrimination based on transgender status); *Hammons v. Univ. of Md. Med. Sys. Corp.*, 551 F. Supp. 3d 567, 592 (D. Md. 2021) (finding plaintiff pled Section 1557 discrimination where hospital refused to perform hysterectomy to treat gender dysphoria).

The Transgender Plaintiffs receive their medical care from providers who receive federal financial assistance and funding and who are subject to the non-discrimination provisions of Section 1557 of the ACA. *See* 42 U.S.C. § 18116(a). (*See also* Koe Decl ¶ 13.) In addition, the Healthcare Provider Plaintiffs are subject to Section 1557 of the ACA because they receive federal financial assistance as providers of medical care for transgender beneficiaries of Alabama Medicaid. (*See id.* ¶ 13.)

Healthcare Provider Plaintiffs cannot comply with both Section 1557 of the ACA and the Act. They are put in the impossible position of complying with Section 1557 by providing medical care to transgender minors consistent with the standard

of care, and risking criminal penalties under the Act, or complying with the Act and being subject to federal enforcement proceedings and private lawsuits for discrimination under Section 1557. *See* Letter from Kristen Clarke, Assistant Attorney General at U.S. Dep't of Justice Civil Rights Div., to State Attorneys General (Mar. 31, 2022), *available at* https://www.justice.gov/opa/press-release/file/1489066/download (reminding state attorneys general that Section 1557 of the Affordable Care Act prohibits state laws that discriminate against transgender people). As such, the ACA preempts the Act's requirement that healthcare providers must deny certain types of medical care to transgender minors based on their transgender status. The Act puts healthcare providers in an impossible position and also contravenes the overall goal of the ACA—to broaden access to healthcare in the United States—as well as the specific purpose of Section 1557 to prevent discrimination in the provision of healthcare. *See King v. Burwell*, 576 U.S. 473, 478-79 (2015). Because the Act conflicts with the ACA, it is preempted by federal law and may not be enforced.

IV. The Act Will Cause Immediate, Irreparable Harm to Plaintiffs.

Without the injunctive relief sought, the Act will cause Plaintiffs to suffer serious irreparable harms.

First, if the Act is not enjoined, the Parent Plaintiffs will be forced to helplessly watch the harm to their children unfold because the Act deprives them of

the fundamental constitutional right to obtain essential medical care for their children. *See Brandt*, 551 F. Supp. 3d at 892-93 (finding parent plaintiffs demonstrated irreparable harm where act banning transition-related care for minors infringed on their fundamental right to parent their children). Like other parents, these Parent Plaintiffs want to be able to care for their children—to get their children the medical care doctors have told them, and they have seen for themselves, is essential to their children's ability to thrive. The Act inflicts serious, irreparable harm by barring the Parent Plaintiffs from acting in the best interests of their children in an area that lies at the heart of parental responsibilities and rights.

Second, the Act also inflicts irreparable harm by depriving the Transgender Plaintiffs of necessary medical care for a serious medical condition. This denial will cause irreversible and harmful physical changes and irreparable mental harm, including the reemergence of gender dysphoria which untreated will predictably cause them to suffer anxiety, depression, and severe psychological distress. Denial of medically necessary medical care is sufficient to show immediate and irreparable harm. *See, e.g.*, *Bowen v. City of New York*, 476 U.S. 467, 483-84 (1986) (finding denial of benefits caused irreparable injury by exposing plaintiffs to "severe medical setback[s]" or hospitalization); *Gayle v. Meade*, -- F.Supp.3d --, No. 20-21553-CIV, 2020 WL 3041326, at *20-21 (S.D. Fla. June 6, 2020) (holding that increased likelihood of serious illness constitutes an irreparable injury); *Flack v. Wis. Dep't of*

Health Servs., 331 F.R.D. 361, 373 (W.D. Wis. 2019) (denying coverage for medical treatment for gender dysphoria is irreparable harm); *Karnoski v. Trump*, No. C17-1297-MJP, 2017 WL 6311305, at *9 (W.D. Wash. Dec. 11, 2017) (finding that denial of "transition-related medical care" constituted irreparable harm).

Without the essential treatment Zachary needs, he will resume going through an unwanted female puberty that conflicts with his male identity, and he will suffer devastating and irreversible physical and psychological consequences as a result. (Zoe Decl. ¶¶ 11-13.) Michael, whose mental health providers have recommended that he be assessed for medical treatment of gender dysphoria, will be unable to obtain that care, which will exacerbate his gender dysphoria and force him to undergo harmful and unwanted physical changes that will be devastating to his physical and mental health. (Boe Decl. ¶¶ 9, 15.) Christopher and Allison, who both are currently on hormone therapy and thriving as a result, will be cut off from this essential care. (Noe Decl. ¶¶ 15, 17-18; Poe Decl. ¶¶ 21-22.) Their bodies will undergo extremely distressing and unwanted physical changes that will cause them to suffer severe emotional and psychological distress. (*See* Noe Decl. ¶¶ 12, 18; Poe Decl. ¶¶ 23-25.) These harms are serious, irreparable, and potentially life-threatening. (Ladinsky Decl. ¶¶ 15-16; Rosenthal Decl. ¶¶ 37, 44-45, 55, 57; *see also* Moe. Decl. ¶¶ 15-16.)

As the district court found in *Brandt* when enjoining a similar Arkansas law, barring transgender youth from essential medical care forces them to "undergo endogenous puberty," causing them to "live with physical characteristics that do not conform to their gender identity, putting them at high risk of gender dysphoria and lifelong physical and emotional pain." 551 F. Supp. 3d at 892; *see also Campbell v. Kallas*, No. 16-CV-261-JDP, 2020 WL 7230235, at *8 (W.D. Wis. Dec. 8, 2020) (slip op.) (finding plaintiff demonstrated "irreparable injury" required for an injunction where plaintiff "continues to suffer from gender dysphoria, which causes her anguish and puts her at risk of self-harm or suicide").

Third, enforcement of the Act will also inflict irreparable harm on Drs. Koe and Moe, who will face the ever-present threat of criminal prosecution and penalties if they continue to provide medically necessary and appropriate referrals and treatments to their minor transgender patients, and who will be put to the untenable choice of either risking arrest or harming their patients. *See Brandt*, 551 F. Supp. 3d at 891-92 (finding healthcare provider plaintiffs proved irreparable harm when Arkansas medical ban would force them to "choos[e] between breaking the law and providing appropriate guidance and interventions for their transgender patients").

And finally, enforcement of the Act will irreparably harm Rev. Eknes-Tucker by criminalizing his pastoral speech. "The loss of First Amendment freedoms, for

even minimal periods of time, unquestionably constitutes irreparable injury." *Elrod v. Burns*, 427 U.S. 347, 373 (1976) (plurality opinion).

As the Eleventh Circuit has explained, constitutional violations constitute irreparable harm when they cannot "be compensated for by monetary damages." *Ne. Fla. Chapter of Ass'n of Gen. Contractors v. City of Jacksonville*, 896 F.2d 1283, 1285 (11th Cir. 1990); *see also Cate v. Oldham,* 707 F.2d 1176, 1189 (11th Cir. 1983) (holding that the directly penalizing free speech constitutes irreparable injury for purposes of a preliminary injunction). No amount of money can compensate for the Act's infringement on a parents' right to seek and obtain essential medical care for their child. Nor can money compensate for the imposition of criminal penalties on parents' First Amendment right to seek information and recommendations from healthcare providers, on doctors' constitutionally protected freedom to share their opinions and expertise with their patients, or on a pastor's rights to counsel families consistent with his faith-based beliefs. The enforcement of the Act in violation of these fundamental rights inflicts irreparable harm and warrants entry of a preliminary injunction.

V. Injuries to Plaintiffs Outweigh Any Damage to the State, Which Has No Interest in Enforcing an Unconstitutional Law.

The serious irreparable harms that Plaintiffs will experience if the Act takes effect outweigh any countervailing government interest. When "the nonmovant is the government, . . . the third and fourth requirements [for an injunction]—'damage

to the opposing party' and 'public interest'—can be consolidated." *Otto v. City of Boca Raton*, 981 F.3d 854, 870 (11th Cir. 2020); *see also Nken v. Holder*, 556 U.S. 418, 435 (2009) (same). Moreover, there is no "legitimate interest in enforcing an unconstitutional ordinance." *Otto*, 981 F.3d at 870; *see also KH Outdoor, LLC v. City of Trussville*, 458 F.3d 1261, 1272 (11th Cir. 2006).

The balance of the equities strongly favors an injunction here. On the one side, the State is seeking to enforce an injurious, unconstitutional, and discriminatory law. In sharp contrast, the Act will impose significant irreparable harms on transgender young people, their parents, healthcare providers, and faith leaders like Rev. Eknes-Tucker. Plaintiffs will be forced to watch their children suffer the harm of losing the medical care they need and of experiencing the mental anguish and pain of untreated gender dysphoria. The Transgender Plaintiffs will abruptly lose essential medical care, be forced to undergo irreversible physical changes, and suffer intense suffering and distress. The Healthcare Provider Plaintiffs will be forced to choose between imprisonment and inflicting harm on vulnerable patients, as they cannot provide the medical care consistent with the recognized standard of care that they believe to be in their patients' best interest.

To be sure, the balance of the equities strongly favors an injunction here. An injunction would maintain the status quo while Plaintiffs pursue their claims. Plaintiffs can continue to meet their children's medical needs, transgender young

people can continue to receive recommended, medically necessary treatment for their gender dysphoria, healthcare providers can continue to treat their patients without fear of prosecution, and faith leaders can continue to counsel families consistent with their religious beliefs while this case is litigated.

VI. CONCLUSION

For the foregoing reasons, Plaintiffs respectfully request that this Court enjoin the State from implementing Act while this lawsuit is pending. Plaintiffs further request the Court to enter a temporary restraining order if the Court is unable to rule on Plaintiffs' preliminary injunction motion before May 8, 2022, when the law is scheduled to go into effect.

Respectfully submitted this 21st day of April, 2022.

/s/ Melody H. Eagan
Melody H. Eagan (ASB-9780-D38M)
Jeffrey P. Doss (ASB-4212-R62D)
Amie A. Vague (ASB-4113-Q46I)
LIGHTFOOT, FRANKLIN & WHITE LLC
The Clark Building
400 20th Street North
Birmingham, AL 35203
205.581.0700
meagan@lightfootlaw.com
jdoss@lightfootlaw.com
avague@lightfootlaw.com

J. Andrew Pratt (ASB-3507-J56P)

Misty L. Peterson (GA Bar No. 243715) (*pro hac vice* application forthcoming)
Adam Reinke (GA Bar No. 510426) (*pro hac vice* application forthcoming)
Gilbert Oladeinbo (GA Bar No. 669340) (*pro hac vice* application forthcoming)
KING & SPALDING LLP
1180 Peachtree Street Northeast, Suite 1600
Atlanta, GA 30309
404.572.4600
apratt@kslaw.com
mpeterson@kslaw.com
areinke@kslaw.com
goladeinbo@kslaw.com

Brent P. Ray (IL Bar No. 6291911) (*pro hac vice* application forthcoming)
Abigail Hoverman Terry (IL Bar No. 6327057) (*pro hac vice* application forthcoming)
KING & SPALDING LLP
110 North Wacker Drive, Suite 3800
Chicago, IL 60606
312.995.6333
bray@kslaw.com
ahoverman@kslaw.com

Michael B. Shortnacy (CA Bar No. 277035) (*pro hac vice* application forthcoming)
KING & SPALDING LLP
633 West Fifth Street, Suite 1600
Los Angeles, CA 90071
213.443.4355
mshortnacy@kslaw.com

Asaf Orr (CA Bar No. 261650) (*pro hac vice* application forthcoming)
NATIONAL CENTER FOR LESBIAN RIGHTS
870 Market Street, Suite 370
San Francisco, CA 94102
415.392.6257
aorr@nclrights.org

Jennifer L. Levi (MA Bar No. 562298) (*pro hac vice* application forthcoming)
GLBTQ LEGAL ADVOCATES & DEFENDERS
18 Tremont, Suite 950
Boston, MA 02108
617.426.1350
jlevi@glad.org

Scott D. McCoy (FL Bar No. 1004965) (*pro hac vice* application forthcoming)
SOUTHERN POVERTY LAW CENTER
P.O. Box 12463
Miami, FL 33101
334.224.4309
scott.mccoy@splcenter.org

Diego A. Soto (ASB-3626-Y61S)
SOUTHERN POVERTY LAW CENTER
400 Washington Avenue
Montgomery, AL 36104
334.604.1414
diego.soto@splcenter.org

Jessica L. Stone (GA Bar No. 275567) (*pro hac vice* application forthcoming)
SOUTHERN POVERTY LAW CENTER
150 E. Ponce de Leon Ave., Suite 340

Decatur, GA 30030
404.221.5837
jessica.stone@splcenter.org

Sarah Warbelow (MI Bar No. P66690) (*pro hac vice* application forthcoming)
Cynthia Weaver (NY Bar No. 5091848) (*pro hac vice* application forthcoming)
HUMAN RIGHTS CAMPAIGN FOUNDATION
1640 Rhode Island Ave., NW
Washington, DC 20036
202.628.4160
sarah.warbelow@hrc.org
cynthia.weaver@hrc.org

CERTIFICATE OF SERVICE

I certify that on this 21st day of April, 2022, I filed the foregoing with the Clerk of Court. I further certify that I will cause a copy of this Memorandum and accompanying Motion and Exhibits to be served along with a copy of the Summons and Complaint by delivering a copy to the following Defendants, or to their respective agents who are authorized by law to receive service of process, pursuant to Fed. R. Civ. P. 4:

Kay Ivey
The Office of Alabama Governor
600 Dexter Avenue
Montgomery, Alabama 36130

C. Wilson Baylock
District Attorney for Cullman County
500 2nd Avenue SW
Cullman, Alabama 35055

Daryl D. Bailey
District Attorney for Montgomery County
251 South Lawrence Street
Montgomery, Alabama 36014

Steve Marshall
Attorney General, State of Alabama
501 Washington Avenue
Montgomery, Alabama 36104

Jessica Venitere
District Attorney for Lee County
2311 Gateway Drive #111
Opelika, Alabama 36801

Tom Anderson
District Attorney for 12th Judicial Circuit
1065 E. McKinnon Street
New Brockton, Alabama 36351

Danny Carr
District Attorney for Jefferson County
810 Richard Arrington, Jr. Blvd. N., Suite 105
Birmingham, AL 35203

/s/ Melody H. Eagan
Attorney for Plaintiffs

DOC. 8-1

EXHIBIT 1

IN THE UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D.; and RACHEL KOE, M.D.,

Plaintiffs,

v.

KAY IVEY, in her official capacity as Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON, in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official capacity as District Attorney for Jefferson County,

Defendants.

Civil Action No. 2:22-cv-184-LCB

Hon. Liles C. Burke

DECLARATION OF LINDA A. HAWKINS, PH.D., LPC IN SUPPORT OF PLAINTIFFS' MOTION FOR TEMPORARY RESTRAINING ORDER & PRELIMINARY INJUNCTION

I, Linda A. Hawkins, Ph.D., M.S.Ed., LPC, declare as follows:

1. I submit this expert declaration based upon my personal knowledge.

2. If called to testify in this matter, I would testify truthfully based on my expert opinion.

Qualifications and Experience

3. I am a Licensed Professional Counselor with a M.S.Ed. in Psychological Services from the University of Pennsylvania in 1998, and a Ph.D. in Human Development and Human Sexuality from Widener University in 2009, specializing in working with children and adolescents experiencing gender dysphoria and their families. A true and correct copy of my Curriculum Vitae is attached hereto as **Exhibit A**.

4. I have over two decades of experience in supporting lesbian, gay, bisexual, transgender, and queer (LGBTQ) youth and their families, both in private practice and through my work with hospitals and clinics. During that time, I have individually worked with more than 4,000 LGBTQ children, adolescents, and families from around the world.

5. In January 2014, I helped found and co-direct the Gender & Sexuality Development Program at The Children's Hospital of Philadelphia, which now operates from two clinics: Philadelphia, Pennsylvania and Voorhees, New Jersey. As Program Director, I oversee the care of nearly 3,000 families and field an average of

twenty new referrals a week. I also lead and participate in research for developing best care practices for LGBTQ children and their families, train health care and mental health providers on best care practices, establish gender-affirming hospital policies, and advise local, regional, and national organizations as they create and update guidelines for the care of transgender and gender-expansive children, youth, and their families. This includes direct trainings and policy review with schools, churches, social service agencies, mental health centers, and juvenile correction centers and insurance companies.

6. In January 2018, I helped found the Advanced Training Program in Affirmative Therapy for Transgender Communities, which is a year-long national professional training course for therapists to train them in supporting transgender clients across their clients' lifespans, that now has sites based in Seattle, Washington and Philadelphia, Pennsylvania. I have served as the Founder and Director since the program's inception, which includes both teaching duties and supervising the eight employees who implement the training and supervise the program on a daily basis. The American Psychological Association, U.S. Professional Association of Transgender Health, American Counseling Association, and American Association of Sexuality Educators, Counselors and Therapists are currently considering endorsing the program.

7. My recent publications include *Experience of Chest Dysphoria and Masculinizing Chest Surgery in Transmasculine Youth*, Pediatrics, 147(3) (2021); *Transgender Youth Experiences with Implantable GnRH Agonists for Puberty Suppression*, Liebert (https://doi.org/10.1089/trgh.2021.0006) (2021); *Sexual and Gender Minority Adolescents: Meeting the Needs of Our LGBTQ Patients and Their Families*, Clinical Pediatric Emergency Medicine, 20(1), 9–16 (2019); *Sexual Orientation/Gender Identity Cultural Competence: A Simulation Pilot Study*, Clinical Simulation in Nursing, 16, 2–5 (2018); *Barriers to Care for Gender Non-Conforming Youth: Perspectives of Experienced Care Providers, Transgender Youth and Their Parents*, Journal of Adolescent Health, Vol. 62, Issue 2 (2018); *Effective Treatment of Depressive Disorders in Medical Clinics for Adolescents and Young Adults Living with HIV: A Controlled Trial*, Journal of Acquired Immune Deficiency Syndrome, 71(1), 38–46 (2017); *Policy Perspective: Ensuring Comprehensive Care and Support for Gender Nonconforming Children and Adolescents*, Transgender Health, 1(1), 75–86 (2016); and *Creating Welcoming Spaces for Lesbian, Gay, Bisexual and Transgender (LGBT) Patients: An Evaluation of the Healthcare Environment*, Journal of Homosexuality, 63(3), 387–93 (2016). I have also authored chapters of textbooks, including "Sexual Disorders and Transgender Health" in *Fundamentals in Consultation Psychiatry: Principles and Practice*, Eds. Lavakumar, M., Rosenthal, L., & Rabinowitz, T. Nova Medicine & Health: New

York, NY (2019). A listing of my publications is included in my Curriculum Vitae in **Exhibit A**.

8. I belong to a number of professional organizations and associations relating to (i) the overall mental health and well-being of all children, youth and their families; (ii) the health and well-being of children and adolescents, including those who are transgender; and (iii) to appropriate medical treatments for transgender individuals. For example, since 2005, I have been a member of the World Professional Association for Transgender Health ("WPATH"), an international multidisciplinary professional association to promote evidence-based care, education, research, advocacy, public policy and respect in transgender health. I was also elected as a Fellow of the College of Physicians of Philadelphia, invited to join based on my local, regional, national, and international contributions to the medical and mental health and wellness of transgender and gender non-binary children and youth, as well as my contributions to the education of medical professionals as part of this care. A complete list of my involvement in various professional associations is located in my Curriculum Vitae in **Exhibit A**.

9. From 2010-present, I have served as an Editorial Reviewer for Academic Pediatrics and the Society for the Scientific Study of Sexuality.

10. I have previously testified two times at trial or in deposition as an expert witness.

11. My opinions contained in this declaration are based on: (i) my years of experience as a Licensed Counselor and PhD training in treating transgender patients, including children, adolescents and young adults; (ii) my knowledge of the peer-reviewed research, including my own, regarding the treatment of LGBTQ patients and those suffering from gender dysphoria; and (iii) my review of the various declarations submitted in support of the motions. I generally rely on these types of materials when I provide expert testimony, and they include the documents specifically cited as supportive examples in particular sections of this declaration. The materials I have relied on in preparing this declaration are the same type of materials that experts in my field of study regularly rely upon when forming opinions on the subject.

12. I was provided with and reviewed the following case-specific materials: (i) the expert declaration of Stephen Rosenthal, M.D. ("Dr. Rosenthal Decl."), and (ii) Senate Bill 184, as enacted ("the Act").

13. I have not met or spoken with the Plaintiffs or their parents for purposes of this declaration. My opinions are based solely on the information that I have been provided by Plaintiffs' attorneys as well as my extensive experience studying gender dysphoria and treating transgender patients.

14. I am being compensated at an hourly rate for the actual time that I devote to this case, at the rate of $300 per hour for any review of records, preparation

of reports or declarations, and deposition and trial testimony. My compensation does not depend on the outcome of this litigation, the opinions that I express, or the testimony that I provide.

Gender Identity Development and Gender Dysphoria

15. Because a person's gender identity is unknowable at birth, doctors assign sex based on the appearance of a newborn's external genitalia. For most people, that assignment also turns out to be a consistent reflection of their gender identity. However, for transgender people, their assigned sex does not match their gender identity.

16. Gender identity is a person's innate, inner sense of belonging to a particular gender, such as male or female.

17. Medical, mental health and human development research has repeatedly shown that gender identity is hard wired and a core component of human identity. Every person has a gender identity. Dr. Rosenthal's declaration provides a comprehensive overview of the research demonstrating that gender identity has strong biological ties. (Dr. Rosenthal Decl. at ¶¶ 14-17.)

18. A person's gender identity is not a personal decision, preference, or belief. Like nontransgender people, transgender people do not simply have a "preference" to live consistent with their gender identity; trying to live as a gender they are not feels viscerally wrong and can cause a range of psychological outcomes

from minor distress to overwhelming daily anxiety and depression that can culminate in thoughts of self-harm or death.

19. A key milestone of child development is a child becoming aware of their gender identity. My declaration will focus on that process and the psychological distress young people experience when their assigned sex and gender identity do not match.

20. Children typically become aware of their gender identity between the ages of three and five years old. During these young years, individuals will often gravitate toward toys, clothing, activities, and peer relationships that most typically align with their gender identity. At the same time, those children are also surrounded by gender rules, regulations and expectations in their families, the media, and community. Children assigned male at birth are typically rewarded for following the male-based expectations set out for them and the children assigned female at birth are equally rewarded for following the female-based expectations set out for them, regardless of the child's gender identity.

21. Transgender individuals who become aware in childhood that those expectations do not match with who they are often begin to express their cross-gender identity to their family members and caregivers. The statements and actions transgender children use to communicate their cross-gender identity differ significantly from age-appropriate imaginative play. Transgender children are

insistent, persistent, and consistent over time in their cross-gender identification. Transgender children will also manifest psychological distress as a result of the mismatch between their assigned sex and their gender identity if they are not allowed to live consistent with their gender identity.

22. This sets the experience of transgender children apart from non-transgender children. While non-transgender children may also experience some gender exploration, and some girls will be "tomboys" and some boys will live as feminine boys, the intensity and persistence of the cross-gender identification that transgender children express is of a different order. Historically, earlier studies included a wide range of gender nonconforming children, rather than differentiating between transgender and non-transgender children, and also suffered from other serious methodological flaws that make them unreliable. Today, based on current scientific knowledge and clinical practice, researchers and clinicians are much better equipped to differentiate transgender from non-transgender children and adolescents. Recent studies have found that, when following the standard of care for diagnosing gender dysphoria, the rate of "desistance" for transgender adolescents who are properly diagnosed, evaluated, and treated is virtually nonexistent.

23. A significant proportion of transgender children do not have the ability to clearly understand, state or share the distress they are experiencing. Those children can experience a wide range of psychological distress from difficulty

sleeping to anxiety at school or severe depression and may not fully realize that this distress is linked to being transgender. Over time, their inability to understand the root of their distress and/or to express themselves further exacerbates their psychological distress.

24. Yet another significant proportion of young transgender children may have had an underlying feeling of not fully aligning with the sex they were assigned at birth, but felt "good enough" being supported and perceived as a female identified as a tomboy or a feminine presenting gay male. However, as puberty starts and a young person begins to experience the physical changes associated with their birth sex including developing secondary-sex characteristics (*e.g.*, breast development, menstruation, testicular and penile expansion, and deepening of voice) these youth experience intense distress that cannot be explained as simply being upset about puberty. That distress is caused by gender dysphoria, which is exacerbated by puberty for youth who are transgender, not simply gender nonconforming. These youth share a strong and real awareness of their gender identity not as a female identified as a tomboy, but as male, and not as a feminine male, but a female.

25. Gender Dysphoria is the diagnosis characterized by the severe and unremitting emotional pain resulting from the incongruity between a person's assigned sex and their gender identity. It is a serious condition and is listed in the *Diagnostic and Statistical Manual of Mental Disorders* ("DSM-5") of the American

Psychiatric Association and has been for decades. Because Gender Dysphoria also has significant implications for a transgender young person's physical health that require medical care, there is also a companion diagnosis in the World Health Organization's International Classification of Diseases (ICD-10). Major medical and behavioral health associations recognize the validity and seriousness of the condition of gender dysphoria and support its treatment consistent with established standards of care. These include the American Medical Association, the Endocrine Society, the American Academy of Pediatrics, the American Psychological Association, the American Psychiatric Association, National Association of Social Workers, and others.

Standards of Care for Working with Transgender Children

26. When loved, supported, and treated consistent with their gender identity by their parents and caretakers and in their social, medical and educational environments, transgender children—like all children—can thrive, grow into healthy adults and have the same capacity for happiness, achievement, and contribution to society as others. For transgender children and youth, that means supporting them to live in a manner consistent with their gender identity.

27. Getting treatment for Gender Dysphoria and ensuring that a transgender child is in an environment that does not undermine that treatment are critical to a transgender child's healthy development and well-being. For young transgender

children, the treatment of Gender Dysphoria consists of social transition, which involves changes that bring the child's outer appearance and lived experience into alignment with the child's gender identity. Changes often associated with a social transition include changes in clothing, name, pronouns, hairstyle, and updating government-issued identity documents to reflect the child's new name and correct the sex listed on those documents so that others interact with them in a manner that affirms and supports their gender identity.

28. Research and clinical experience have shown that social transition for a child with Gender Dysphoria improves that child's mental health and greatly reduces the risk that the child will experience anxiety, depression and possibly engage in self-harming behaviors. *See Kristina Olson, et al., Mental Health of Transgender Children who are Supported in Their Identities*, 137 Pediatrics 1 (2016). In fact, longitudinal studies demonstrate that undergoing a social transition before puberty often provides tremendous and immediate relief because there are few, if any, observable physical differences between boys and girls at that age.

29. A social transition is often eventually coupled with other treatments for Gender Dysphoria once a young person enters adolescence including puberty blockers and hormone therapy to bring a person's body into alignment with their gender identity. The availability and effects of those treatments are discussed in detail in Dr. Rosenthal's declaration. (Dr. Rosenthal Decl. ¶¶ 32-55.) As with social

transition those treatments occur within a context of treatment and assessment by qualified professionals, often in a single multidisciplinary setting meaning that a patient's multiple providers (endocrine, primary care, mental health specialist) all work in consultation and coordination with one another to provide care for the patient.

30. Mental health counseling can have a tremendous positive effect on a patient's mental health. Not only can counseling reduce a young person's psychological distress, but it can help reduce their reliance on harmful coping strategies, if not replace them all together. I have seen many patients make significant progress through counseling to address many, but not all, areas of distress a transgender child or youth may be experiencing with their own identity as well as coping with how others around them may be reacting to their transgender identity.

31. For transgender young people approaching or going through puberty, however, counseling by itself is not sufficient to fully manage their Gender Dysphoria. The physical changes associated with puberty greatly exacerbate a transgender young person's psychological distress because their bodies are becoming more incongruent with their gender identity every day. More importantly, counseling is unable to stop those changes from occurring, nor can it help bring a patient's body into alignment with their gender identity. For many transgender youth, medical care is crucial and vital for survival.

The Role of Mental Health Providers in Assessing Necessity of Medical Treatments for Gender Dysphoria

32. When a child or adolescent experiencing Gender Dysphoria starts to see a mental health provider such as myself, that provider's first objective is assessment, including diagnosis. As with any assessment, the provider must gather a detailed history of the patient and their psychological distress surrounding their gender identity, including its sources and manifestations. To appropriately conduct that assessment, the mental health provider must draw from their professional training and experience in working with transgender young people, exercise professional judgment, and tailor the assessment to each individual patient and their family. The number of sessions that assessment requires will vary greatly depending on the patient's presentation and the complexity of the issues the patient is navigating.

33. In addition to meeting with the patient and family, this assessment process typically includes gathering and reviewing additional information from the child's Primary Care Provider, local therapist and psychiatrist and any additional adult professionals who are part of the patient's care team. Without this thorough and comprehensive assessment, a mental health provider could not accurately diagnose a patient with Gender Dysphoria and provide the recommendations for treatment and care.

34. Once the mental health provider has confirmed that the patient is experiencing Gender Dysphoria, the provider develops a treatment plan, which can

include referrals to medical providers for treatments like puberty-blocking medications and hormone therapy.

35. Over the course of their initial assessment—and subsequent treatment—mental health providers will engage their patients in many discussions about the aspects of the patient's life and appearance that exacerbate their Gender Dysphoria. The purpose of those conversations is two-fold: identify the areas where the patient needs to develop resilience and coping strategies to minimize the effects of their Gender Dysphoria; and evaluate the mental health benefits of future social changes and medical treatment. For example, those discussions may reveal that a transgender patient's distress about the onset of puberty is impairing their ability to engage in peer relationships or routine self-care (*e.g.,* avoiding showering), as well as impairing their ability to focus at school. The mental health provider can then work with the patient to develop psychological and social strategies to reducing the functional limitations caused by the Gender Dysphoria. While this level of care can prove fully beneficial for some young people diagnosed with Gender Dysphoria, in other cases the treatment plan strongly indicates that puberty-blocking medications is necessary to prevent that patient's mental health from deteriorating at the onset of puberty.

36. If the patient and their family decide to pursue medical treatment, the mental health provider will build on those discussions to also assess the patient's

appropriateness and readiness for that treatment. As mentioned above, the appropriateness of any medical treatment is determined by a multidisciplinary team of expert mental and medical care providers. A patient's readiness to begin a particular course of medical treatment requires an evaluation of the patient's understanding of the goals and potential limitations of the contemplated treatment. For example, for puberty-blocking medication, the provider will gauge the patient's ability to comprehend the effects of puberty on their body and mental health. An integral part of that discussion is evaluating a patient's grasp of the consequences of stopping those physical changes from occurring and alternatives to puberty-blocking treatment. And, in cases of the addition of hormone therapy in adolescence, the review of physical impact, including benefits and limitations, is explored over multiple meetings with the patient and parents.[1] The provider will have those discussions with the patient and their parents both individually and together. As with the initial diagnosis, the amount of time required to complete this evaluation will depend on numerous factors including the length of their existing therapist-patient relationship and the complexity of the issues facing that patient.

[1] *See*, *e.g.*, *"This Wasn't a Split-Second Decision": An Empirical Ethical Analysis of Transgender Youth Capacity, Rights, and Authority to Consent to Hormone Therapy*, Clark, BA, Bioethical Inquiry (2021) https://doi.org/10.1007/s11673-020-10086-9.

37. The mental health provider will then document the results of their assessment in a letter to the patient's treating physician. The letter details the provider's diagnostic analysis as well as any professional opinions regarding the benefits of and readiness for the contemplated treatment. The medical provider uses that letter as one piece of their own independent assessment. It is not uncommon for a medical provider to contact the patient's mental health provider to discuss the details of the letter.

Medical Treatment for Gender Dysphoria is Critical to the Mental Health of Transgender Youth

38. Scientific literature and clinical experience consistently find that, like social transition, medical treatment for Gender Dysphoria offers significant psychological benefit to transgender young people. For example, one longitudinal study found that transgender young adults who received the full range of medical and mental health treatments for their gender dysphoria had a mental health profile that was indistinguishable from their non-transgender peers. Annelou L.C. de Vries, et al., *Young Adult Psychological Outcome After Puberty Suppression and Gender Reassignment*, 134 Pediatrics 696 (2014). Medical treatments for gender dysphoria are effective because they keep a transgender person's body in alignment with their gender identity, either by stopping that incongruence from growing or by changing the person's body to be more congruent with their gender identity, which in turn help reduce a person's Gender Dysphoria.

39. Conversely, however, the denial of medical treatment will severely hinder a transgender young person's development and well-being. Even if not initially visible to the public, the physical changes associated with puberty widen the incongruence between a transgender young person's body and their gender identity. The permanence of those physical changes can result in distress that is significant and acute because the changes brought on by puberty become constant triggers for Gender Dysphoria, such as monthly menstruation, chest development, deepening of voice and unwanted erections.

40. As puberty progresses, those physical changes become more obvious and will undermine a transgender young person's ability to live in a manner consistent with their gender identity. Their appearance will cause them to be repeatedly referred to by their birth sex, which is different than their gender identity. The incongruence between their gender identity and appearance will also subject them to ridicule, harassment, and discrimination. In either situation, a transgender young person will experience that mistreatment as a rejection of their core self and identity, which will further exacerbate their Gender Dysphoria.

41. If left unaddressed, as under the wait-and-see approach, a transgender young person is likely to develop co-occurring mental health conditions, such as major depression, anxiety or obsessive-compulsive disorders, eating disorders, self-harm, and thoughts of suicide. Transgender young people can also experience

difficulties focusing on schoolwork, building and maintaining friendships, among other serious functional limitations.

42. Those harms are exponentially compounded for a transgender young person living at the intersection of minority identities based on the layered ways in which peers and adults can stigmatize identified differences in race, ethnicity, religion/faith and socioeconomic status. Multiply marginalized children and youth face vastly higher levels of anxiety and depression that are more likely to lead to self-harm and even death by suicide. In the last few years, as individuals in these multiply marginalized communities are coming under direct and indirect attack from political and religious groups, these children are becoming gravely aware that they are not safe in their own neighborhoods and are constantly exposed to negative messages that profoundly state that they do not matter, are not important parts of our community, and otherwise do not belong.

43. Chronic exposure to those levels of sustained stress results in persistent surges of cortisol in the brain for children and youth. This leads to a wide array of short and long-term detrimental consequences, all of which can permanently affect development, emotional, physical and mental health, and quality of life. For example, research has shown that it leads to increased difficulty in differentiating between threatening and safe situations, impaired short-term and long-term memory, struggles with decision-making and attention, and issues with mood control, even in

adulthood. Studies have also shown that chronic stress in childhood and adolescence results in a higher likelihood of developing a myriad of physical health issues, including diabetes, heart disease, and cancer.

44. Once an area of clear and consistent stress and distress has been identified for any child, it should be addressed in a way that provides clear, consistent and safe relief. This is vital based on the research on both the negative health impact of chronic stress/distress on human bodies as well as the clear, safe and consistent guidelines for relieving this stress and distress for transgender children and youth.

Conclusion

45. Criminalizing the provision of medical treatment for Gender Dysphoria will inflict immeasurable harm on transgender young people throughout Alabama that will have long-lasting implications for the mental health of this already vulnerable population and the many family members who support them. Transgender young people will have proven effective, life sustaining medical care dangerously delayed between five and ten years to obtain what are considered time-sensitive medical treatments for gender dysphoria. Not only will their mental health decompensate during that time, but their ability to treat and manage their Gender Dysphoria will be greatly diminished with some body changes being irreversible. For many transgender children, the inability to access essential time-sensitive medical treatment will result in irreparable damage to their physical and

psychological health.

46. Those harms will significantly compound the inability of transgender young people to live in a manner consistent with their gender identity due to body changes that negate their ability to keep private, for those who wish to do so, the deeply personal fact that they are transgender. Additionally, the social and educational harms resulting from profound and debilitating bullying and harassment of transgender children in local social settings (clubs, sports, after school programs, churches) and school settings will frequently result in out of school placements, online schooling and/or complete removal from academic efforts overall. All of these negative outcomes in childhood have far-reaching and exponentially impacting effects on overall health and wellbeing, typically resulting in a significant increase in anxiety, depression, self-harm and death by suicide.

47. Despite claiming to protect transgender children, the Act will have the exact opposite effect.

This declaration was executed this 17th day of April, 2022.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct.

Linda Hawkins, Ph.D., M.S.Ed., LPC

EXHIBIT A

Curriculum Vitae

Name: **Linda Aline Hawkins, PhD, LPC**
Address: 7153 Anderson Street, Philadelphia, PA 19119
Phone: **215-280-7128**
Email: drlahawkins@gmail.com

Education & Licensure

Licensed Professional Counselor, Pennsylvania – PA #006287 - March, 2012
Ph.D., Human Development & Human Sexuality, Clinical Counseling Focus – Widener University, Chester, PA, October, 2009
Linda Lehnert Memorial Award – Excellence in Academics & Research (4.0 GPA)
Distinguished Dissertation Nomination – Gender Identity Development among Gender Variant Adolescents: A Qualitative Analysis
M.S.Ed., Psychological Services – University of Pennsylvania, Philadelphia, PA, August, 1998
B.S., Speech and Hearing Sciences – University of Washington, Seattle, WA, June, 1993

Current Employment

Founder & Director: Gender & Sexuality Development Program, The Children's Hospital of Philadelphia, Philadelphia, PA, January 2014 to present.
This clinic was one of the nation's first four pediatric gender clinics to support children and youth who are gender non-conforming, gender explorative and/or transgender.
Accomplishments as part of achieving this include:

Developed the business plan and founded the Philadelphia clinic at the Hospital in January, 2014 and expanded to include a Voorhees, NJ clinic in January of 2020.
Established needed gender affirming policies within the Hospital to support the clinic patients and families, including updating the employee non-discrimination policy and the patient bill of rights.
Currently running a clinic of nearly 1500 families within first three years of opening; fielding 10-15 referrals weekly.
Securing nearly 100% rate of insurance coverage for puberty blockers through advocacy and education between hospital physicians and insurance adjustors.
Secured multiple internal and externa funding for patient and family needs, including full funding for the family support group, giving library of books to support family exploration and childhood learning on gender, and training support.
Supervise and coordinate staff and scheduling.
Lead and participate in research development as it pertains to the development of best care practices for our patients and families.
Assure the Hospital and all affiliates are performing at the highest level possible in the overarching support for all LGBTQ staff, employees and providers.
Providing state and regional trainings for health care and mental health providers.
Mentoring hospitals nationwide in developing gender affirming care clinics with practices, policies, training and advocacy.
Advising local, regional and national guidelines for the care of transgender and gender expansive children, youth and their families.

Family Services Specialist: Department of Patient & Family Services, The Children's Hospital of Philadelphia, January, 2014 to present.
Goal is to provide on-going assessment of the Hospital policies and practices to assure at every point of contact with patients, families and staff, LGBT individuals are treated with respect, competence and the best practices in health care and employment experience.

Conducting annual training seminars and lectures throughout the CHOP Network and affiliates to increase their LGBT competence in supporting patients and families.
Conducted numerous Grand Rounds presentations and private sessions to assist multiple hospitals to both increase their LGBT patient and family competence, as well as increase specific competence with transgender child/youth patient care.
Establishing first pediatric plans for Transgender Child & Youth Policy & Practice.
As a result of all of the above, successfully supported the Hospital in achieving the Human Rights Campaign Endorsement as a Leader in LGBT Healthcare Equality for The Children's Hospital of Philadelphia from 2014 to present..

Director & Trainer: Advanced Training in Affirmative Therapy for Transgender Communities, Widener University, January, 2018 to present.
Designed and implemented a one-year professional training program for mental health providers based at Widener University. Expanded to bi-coastal in-person offering in Philadelphia and Seattle, shifted to online during pandemic.

Designed year-long curriculum that includes two, in-person weekends and weekly on-line supervision as well as monthly readings.
Supervise 6 training staff to implement the above training and supervision needs.
Develop promotion materials to reach a national audience of potential participants.

Additional Program Development & Management Experience
Interim Director, Gender Affirming Care Clinic: Johns Hopkins All Children's Hospital, St. Petersburg, FL, September 2019 to September 2021. Accomplishments: Completed comprehensive needs assessment of the hospital network to determine existing strengths and areas for growth in providing gender affirming care. Completed comprehensive needs assessment of patient and family care needs. Developed and implemented program expansion plan resulting in the first fully staffed, interdisciplinary care program for transgender and gender nonbinary children, youth and families in the state of Florida.

Interim Director, Center for Gender Affirming Care: Rady Children's Hospital, San Diego, CA, January 2017 to January 2019. Accomplishments: Completed comprehensive needs assessment of the hospital network to determine existing strengths and areas for growth in providing gender affirming care. Completed comprehensive needs assessment of patient and family care needs. Developed and implemented program expansion plan resulting in the rebuilt interdisciplinary care program for transgender and gender nonbinary children, youth and families in San Diego.

Director of Counseling Services: The Attic Youth Center, Philadelphia, PA, May, 2004 to September, 2011. Accomplishments: Expanded program from 2 therapists to 7 therapists with psychiatry partnership and insurance funding. Supervised therapists (MSW, MEd, PsyD and

PhD level clinicians) to provide complete counseling and psychosocial services to sexual and gender minority youth (ages 14-24 years old). Built collaboration with Community Behavioral Health (CBH) to ensure funding for services. Developed annual student training program. Clinical team awarded the Association of Gay & Lesbian Psychiatrists Honor of Mental Health for Youth in 2011. Supervisors: Carrie Jacobs, PhD, Executive Director and Cornelius Furgesson, PhD, Licensed Psychologist.

Program Manager, HIV Counseling and Testing: Adolescent Medicine, The Children's Hospital of Philadelphia, Philadelphia, PA, October, 2004 to March, 2008. Accomplishments: Organized and coordinated all adolescent sexual health and HIV counseling within the Hospital network. Expanded program from 2 testing sites to 9 sites including multiple community events throughout Philadelphia. Developed testing protocols that met and exceeded best practice for testing with youth and young adults. Led strategic grant writing to fund existing and expanded programming, securing annual funding for 4 full time health educators/testers and partial supervision/management salaries. Supervisor: Christine Ambrose, LSW, Program Manager.

Program Coordinator: The Injury Free Coalition for Kids of Philadelphia, The Children's Hospital of Philadelphia, Philadelphia, PA, February, 1999 to February, 2004. Accomplishments: Developed a community based coalition of medical, education, public health, government, and faith based leaders to address the crisis of unintentional injury to children in West and Southwest Philadelphia. Led research and interventions to assess needs, build partnerships and strategize solutions with and for the community. Provided training and guidance to MD, MPH, SW, MEd, and PhD students interested in community based wellness and public health promotion. Led strategic grant writing to secure initial and sustainable funding for core coalition staff and all projects through sources including: Robert Wood Johnson Foundation, DHHS, Ronald McDonald House Philadelphia, Philadelphia Foundation, PEW Charitable Trust, and multiple local funding groups. Successfully funded a $300,000 playground through grassroots, faith-based and competitive matching funds. Supervisors: Flaura Winston, MD, PhD, Center for Pediatric Injury Prevention, and Marla Vanore, MSEd, Trauma Program Manager.

Additional Clinical Experience

Private Practice: Hawkins LifeWorks LLC, Philadelphia, PA, September, 2012 to January, 2014. *Private practice offering clinical support to children and youth who identify as LGBTQ and their families (no new clients as of 2014). Currently offering training for schools, churches and community agencies. Also providing clinical supervision to trainees seeking clinical training needs in these specific areas.*

Supported numerous children, youth and families in their mental health care needs.
Supervised 12 clinical trainees, to date, in their clinical training hours.
Continue to clinically supervise 4 trainees seeking licensure and a dozen clinicians within private practice.
Providing trainings at colleges and hospitals throughout the nation to increase their competency in supporting the needs of LGBT children, youth and families.

Lead Mental Health Counselor: Adolescent HIV Initiative, Adolescent Medicine, The Children's Hospital of Philadelphia, Philadelphia, PA, February, 2004 to December, 2013. Duties:

Providing one on one, couples, family, and group counseling to youth diagnosed with HIV. Train and supervise intern, extern and practicum students in clinical counseling. Build partnerships with community-based counseling and psychiatry services to provide comprehensive seamless care to patients. Lead and assist in grant writing to fund psychosocial support team members (social work, nursing and wellness counselor) with successful awards from the AIDS Activities Coordinating Office (AACO), NIH, NIMH, and DHHS. Supervisor: Tracy DiFonzo, LCSW, Program Manager and Benoit Dube, MD, Psychiatrist.

Adolescent Counselor: The Attic Youth Center, Philadelphia, PA, February, 1999 to December, 2006. Duties: Providing one on one, couples, and group counseling to gay, lesbian, bisexual, transgender, and questioning youth. Supervisor: Cornelius Furgesson, PhD, Licensed Psychologist

Adolescent Counselor: The Open Door, Philadelphia Community Health Alternatives, Philadelphia, PA, March, 1999 to March, 2001. Duties: Providing one on one, couples, and group counseling to gay, lesbian, bisexual, transgender, and questioning youth. Supervisor: Phillip Rutter, PhD, Program Director.

Child Clinical Therapist Intern: Philadelphia Child Guidance Center – Department of Child & Adolescent Psychiatry at the Children's Hospital of Philadelphia, Philadelphia, PA, September, 1997 to May, 1998. Duties: Conducted individual and group counseling with behaviorally challenged children and their families. Collaborated with multidisciplinary team to devise and implement treatment plans. Supervisor: Dr. Brenda Pemberton, Director.

Additional Teaching Experience

Adjunct Associate Professor: Widener University Center for Human Sexuality Studies, Chester, PA, Summer, 2008 to Spring, 2017.

The Center for Human Sexuality Studies at Widener University is the only nationally accredited program in sexuality education and clinical sexuality training in the United States. Students come from across the nation and Canada to train within this program.

Courses Taught as Lead Instructor:

HSED 645 – Sexual Minorities
HSED 624 - Education and Training Methods for the Clinical Sexologist
HSED 695 & 696 - Practicum Supervision (2 semesters)
HSED 588(elective) – Clinical Implications of HIV
HSED 588(elective) - Sexually Transmitted Infections & HIV/AIDS
HSED 593 - Behavioral Foundations of Human Sexuality
HSED 645 - Sexual Minorities
ED652 - Group Process and Dynamics
PY 622 – Trauma, Advocacy & Social Justice
CFTP 511 – Introduction to Sex Therapy: Concepts in Human Sexuality

Consistently achieving exceptional ranking in all course evaluations, on both content, communication and expertise.

Awarded the 2015 Widener Points of Pride Award – awarded annually to the faculty member for exceptional scholarship in the field of sexuality to support the students, faculty and overall profession in the field.

Adjunct Professor: Arcadia University Masters in Psychology Program, Glenside, PA, Fall, 2013 to Spring, 2014. Duties: Design, instruct and evaluate courses for Masters level students. Supervisor: Dr. Eleonora Bartoli, Program Director.

Additional Research Experience

Study Coordinator & Behavioral Study Interventionist: Adolescent Trials Network (ATN), The Children's Hospital of Philadelphia, Philadelphia, PA, January, 2008 to December, 2013. Duties: Implement NIH funded research protocols as designed and designated through the ATN. As coordinator, assure all subject selection, protocol procedure, documentation, data entry, and quality assurance meets and exceeds study requirements. As interventionist, assure all aspects of intervention procedures meet the dynamic needs of the subjects and the study protocol. Supervisor: Mary Tanney, RN, MPH, Research Nurse.

2010 – 2013: Study Interventionist & Coordinator for *Treatment for Depression Among HIV-Infected Youth – (ATN 080)*

2008 – 2013: Study Coordinator for *Neurocognitive Assessment in Youth Initiating HAART, A Multi-Center Study of the Adolescent Medicine Trails Network for HIV/AIDS Interventions (ATN 071)*

2009 – 2012: Study Coordinator & Supervisor for *Mindfulness Approaches to Increasing Wellness Among Youth Living with HIV – Partnership with The Johns Hopkins School of Medicine*

2008 – 2010: Study Interventionist & Coordinator for *Integrated Treatment of Alcohol and/or Marijuana Abuse for HIV-Infected Youth – Focus Groups, Phase I & Phase II (ATN 069)*

2008 – 2009: Co-Investigator for *Sexual Health Risk Among Adolescent and Young Adult African Americans Living with HIV who have Sex with Men – Adolescent Initiative Study, The Children's Hospital of Philadelphia*

2005 - 2006: Primary Investigator for *Internal Validation of OraQuick Advance Rapid HIV 1-2 Antibody Test Kit on Oral Fluids Compared to Standard ELISA Serum Screening – Point of Care Testing, The Children's Hospital of Philadelphia*

2004 – 2005: Co-Investigator for *Post-Traumatic Stress Reactions in HIV-positive Youth: An exploratory study to identify life stressors and impact of diagnosis - Adolescent Initiative Study, The Children's Hospital of Philadelphia*

Peer-reviewed Publications

2021 Hobson, B., Lett, E., **Hawkins, L.**, Swediman, R., Nance, M., & Dowshen, N. Transgender Youth Experiences with Implant GnRH

Agonists for Puberty Suppression. *Transgender Health*, 16 Sep 2021https://doi.org/10.1089/trgh.2021.0006

2021 Experiences of Chest Dysphoria and Masculinizing Chest Surgery in Transmasculine Youth. Mehringer, J., Harrison, J., Quain, K., Sea, J., **Hawkins, L**., & Dowshen, N. *Pediatrics*, 147(3).

2020 Schlupp, A., Dowshen, N., **Hawkins, L.,** & Stallings, V. The Prevalence and Patterns of Food and Beverage Restriction for Bathroom Avoidance in Transgender and Gender-Diverse Youth: A Retrospective Chart Review. *Journal of Adolescent Health Research Poster Symposia*, 66(2), S29.

2019 Libby, B., Miller, V., Regan, K., Gruschow, S., Hawkins, L., & Dowshen, N. Communication of Acceptance and Support In Families Who Have Gender-Variant Youth. *Journal of Adolescent Health*, 64(2), S101-S102.

2019 House, H., Gaines, S., **Hawkins, L**., Sexual and Gender Minority Adolescents: Meeting the Needs of Our LGBTQ Patients and Their Families. *Clinical Pediatric Emergency Medicine*, 20(1), 9-16.

2018 Dowshen, N., Gruschow, S., Taylor, S., Lee, S., & **Hawkins, L**. Barriers to Care for Gender Non-Conforming Youth: Perspectives of Experienced Care Providers, Transgender Youth and Their Parents. *Journal of Adolescent Health*, 62(2), S42.

2018 Hickerson, K., **Hawkins, L.**, & Hoyt-Brennan, A. Sexual Orientation/Gender Identity Cultural Competence: A Simulation Pilot Study. *Clinical Simulation in Nursing*, 16, 2-5.

2017 Brown, L., Kennard, B., Emslie, G.,…**Hawkins, L**. Effective Treatment of Depressive Disorders in Medical Clinics for Adolescents and Young Adults living with HIV: A controlled trial. *Journal of Acquired Immune Deficiency Syndrom*, 71(1), 38-46.

2016 Contributing author. Supporting & Caring for Transgender Children. *Human Rights Campaign*.

2016 Dowshen, N., Lee, S., Castillo, M., **Hawkins, L.**, & Barg, F. Barriers and Facilitators to HIV Prevention, Testing, and Treatment among Young Transgender Women. *Journal of Adolescent Health*, 58(2, Supp), S81-82.

2016 Dowshen, N., Meadows, R., Bymes, M., **Hawkins, L.,** Eder, J., & Noonan, K. Policy Perspective: Ensuring comprehensive care and support for gender nonconforming children and adolescents. *Transgender Health*, 1(1), 75-86. http://online.liebertpub.com/doi/pdfplus/10.1089/trgh.2016.0002

2016	McClain, Z., **Hawkins, L.A.**, & Yehai, B. Creating Welcoming Spaces for Lesbian, Gay, Bisexual, and Transgender (LGBT) Patients: An Evaluation of the Healthcare Environment. *Journal of Homosexuality*, 63(3).
2015	Dowshen, N., Meadows, R., Bynes, M., **Hawkins, L.,** Eder, J., & Noonan, K. Ensuring Comprehensive Care and Support for Gender Non-Conforming Children and Adolescents. *Policy Lab: Evidence To Action*, Fall 2015.
2014	Kennard, B., Brown, L., T., **Hawkins, L**., Risi, A., Radcliffe, J., Emslie, G., Mayes, T., King, J., Foxwell, A., Buyukdura, J., Bethel, J., Naar-King, S., Safran, S., Xu, J., Lee, S., Garvie, P., London, C., Tanney, M., Thornton, S., and the Adolescent Trials Network for HIV/AIDS Interventions. Development of Health and Wellness CBT for Individuals with Depression and HIV: Feasibility and Acceptability. Journal of Cognitive & Behavioral Practice, pp 237-246.
2011	Radcliffe, J., Beidas, R., **Hawkins, L**. & Doty, N. Trauma and Sexual Risk Among Sexual Minority African American HIV Positive Young Adults. *Traumatology*, June 2011.
August, 2010	Radcliffe, J., Doty, N., **Hawkins, L.A.**, Smith, C. Beidas, R., and Rudy, BJ. Stigma and Sexual Health Risk in HIV-Positive African American Young Men who have Sex with Men. AIDS Patient Care and STDs, 24(8).
May, 2010	Radcliffe, J., Beidas, R., **Hawkins, L.A.**, and Doty, N. Trauma and Sexual Risk Among Sexual Minority African-American HIV+ Young Adults. Traumatology. May 7, 2010 as doi:10.1177/1534765610365911
June, 2009	Valenzuela, J., Buchanan, C., Radcliffe, J., Ambrose, C., **Hawkins, L.A.,** Tanney, M. and Rudy, BJ. Transition to Adult Services Among Behaviorally Infected Adolescents with HIV – A Qualitative Study. Journal of Pediatric Psychology, Advanced Access published June 19, 2009
June, 2008	Mollen, CJ, Lavelle, J., **Hawkins, LA**, Ambrose, C. and Rudy, BJ. Description of a Novel Pediatric Emergency Department-Based HIV Screening Program for Adolescents. *AIDS Patient Care and STDs*, 22(6), 505-512.
July, 2007	Radcliffe, J, Fleisher, C.L., **Hawkins, LA**, Tanney, M, Kassam-Adams, N, Ambrose, C, and Rudy, BJ. Posttraumatic Stress and Trauma History in Adolescents and Young Adults with HIV. *AIDS Patient Care and STDs*, 21(7), 501-508.

June, 2004	Posner,J., **Hawkins, LA**, Garcia-Espana, F., & Durbin, D. A randomized controlled trial of a home safety intervention based in an emergency department setting. *Pediatrics*, 113(6), 1603-1608.
September, 2004	Nance, ML, **Hawkins, LA**, Branas, CC, Vivarelli-O'Neill, C, and Winston, FK. Optimal driving conditions are the most common injury conditions for child pedestrians. *Pediatric Emergency Care*, 20(9), 569-573.
December, 2001	Kodman-Jones, C., **Hawkins, L.**, Schulman, S.L. Behavioral characteristics of children with daytime wetting. *Journal of Urology*, 166(6);2392-2395.

Book chapters and other publications

2019	Dube, B, & **Hawkins, L.A** (2019). Sexual Disorders and Transgender Health. Chapter 11 in Fundamentals in Consultation Psychiatry: Principles and Practice. Eds Lavakumar, M., Rosenthal, L., & Rabinowitz, T. Nova Medicine & Health: New York, NY
2018	Hickerson, K., **Hawkins, LA**., Hoyt-Brennan, A. (2018). Sexual Orientation/Gender Identity Cultural Competence: A simulation pilot study. Clinical Simulation in Nursing, 16, 2-5.
2016	McClain, Z., **Hawkins, LA**, Yehia, BR. (2016). Creating Welcoming Spaces for Lesbian, Gay, Bisexual and Transgender (LGBT) Patients: An evaluation of health care environment. Journal of Homosexuality, 63(3), 387-393.
2016	**Linda A. Hawkins,** Nadia Dowshen, Susan Lee. The Bathroom Debate: A legal argument that is causing a public health crisis, PolicyLab, Children's Hospital of Philadelphia http://policylab.chop.edu/blog/bathroom-debate-legal-argument-causing-public-health-crisis
2015	Ensuring Comprehensive Care and Support for Gender Non-Conforming Children and Adolescents. http://policylab.chop.edu/evidence-action-brief/ensuring-comprehensive-care-and-support-gender-non-conforming-children-and
2015	Simms, S., & **Hawkins, L.A.**, *Families with Chronic Medical Issues*, book chapter in Browning, S (Ed.), Contemporary Families: Translating Research into Practice. Routledge: New York, NY.

2014	**Hawkins, L.A.**, & Ginsburg, K.R., *Core Principles in Communicating with Adolescents*, in Ginsburg KR and Kinsman SB. Reaching Teens: Wisdom from Adolescent Medicine. Elks Grove Village IL; American Academy of Pediatrics; (A Textbook and Video Product)
2014	Dowshen, N., **Hawkins, L.A.**, Arrington-Saunders, R., Reirden, D.H., & Garofalo, R, *Sexual and Gender Minority Youth*, in Ginsburg KR and Kinsman SB. Reaching Teens: Wisdom from Adolescent Medicine. Elks Grove Village IL; American Academy of Pediatrics; (A Textbook and Video Product)
2014	Dowshen, N., **Hawkins, L.A.**, Arrington-Saunders, R., Reirden, D.H., & Garofalo, R, *HIV-Infected Youth*, in Ginsburg KR and Kinsman SB. Reaching Teens: Wisdom from Adolescent Medicine. Elks Grove Village IL; American Academy of Pediatrics; (A Textbook and Video Product)
2014	Radcliffe, J., **Hawkins, L.A.,** & Buchanan, C. Pediatric HIV, book chapter in Clinical Practice of Pediatric Psychology: Cases and service delivery. Guilford Press.

Professional Organizations & Appointments

2019 – Present	College of Physicians of Philadelphia - Fellow
2018 – Present	Pennsylvania Transgender Task Force – Appointed by Dr. Rachel Levine and Governor Tom Wolfe - Member
2017 – Present	Human Rights Campaign Transgender Working Group - Member
2012 – Present	American Counseling Association – Member
2012 – Present	Pennsylvania Counseling Association - Member
2011 – 2017	Sexuality Information and Education Council of the United States – Board Member
2010 – Present	Academic Pediatrics – Reviewer
2010 – Present	Society for the Scientific Study of Sexuality – Member & Reviewer
2008 – 2010	Equality Advocates (now Equality Pennsylvania) – Board Member
2005 – Present	World Professional Association for Transgender Health (formerly HBIGDA) - member
2005 – Present	Society for the Scientific Study of Sexuality – Member
2005 – Present	American Association of Sexuality Educators, Counselors and Therapists – Member

Invited Lectures

February 2020	Supporting Transgender, Gender Non-Conforming and Gender Expansive Children & Youth Department of Social Work Johns Hopkins All Children's Hospital, St. Petersburg, FL
January 2020	It Starts With You: Promoting LGBTQ Competence among Colleagues

	Lecture Series: Office of Diversity & Inclusion The Children's Hospital of Philadelphia, Philadelphia, PA
October 2019	Expanding Care for All to Include Transgender Children & Youth Keynote: New Jersey Physicians Advisory Committee, Cherry Hill, NJ
September 2019	Supporting Transgender Children & Youth Keynote: Cooper Pediatrics Group, Moorestown, NJ
September 2019	Collaborating for Care: Models of Gender Clinic Collaboratoin & Mentorship Across the US National Conference, United States Professional Association for Transgender Health (USPATH), Washington, DC
July 2019	Building Knowledge, Skills and Community to Support Transgender Communities: A training program for mental health professionals 2019 Trans Wellness Conference, Philadelphia, PA
July 2019	Non-Binary Youth: Clinical Complexities of Supporting Gender Creativity in a Binary World Gender Spectrum Conference, Moraga, CA
June 2019	Transforming Systems: Creating the Ideal Trans Care Experience National Conference, Canadian Professional Association for Transgender Health (CanPATH), Toronto, Canada
December 2018	Foundational Aspects of Gender Development & Gender Identity Emergence across the Lifespan Hospital of the University of Pennsylvania, Philadelphia, PA
September 2018	Understanding Gender Identity & Development in 2018: Professional, parental and personal perspectives The College of Physicians of Philadelphia, Philadelphia, PA
February 2018	Creating the Ideal LGBTQ Patient & Family Experience: From Policy to Practice Boston Children’s Hospital, Boston, MA
February 2017	Creating Systemic Change for Transgender Children & Youth: Establishing a multidisciplinary pediatric practice that supports patients and families within a hospital network and beyond National Conference, United States Professional Association for Transgender Health (USPATH), Los Angeles, CA
March 2016	Pennsylvania College of Physicians

	Supporting Transgender, Gender Non-Conforming and Gender Expansive Children & Youth, Philadelphia, PA
March 2016	Children's Hospital Association National Conference Creating an Inclusive Experience for LGBT Patients & Families: Policy to Practice, New Orleans, LA
September 2015	Supporting Transgender, Gender Non-Conforming and Gender Expansive Children & Youth Keynote speaker, MSW Field Faculty Orientation University of Pennsylvania School of Social Policy & Practice
April, 2015	Understanding Transgender & Gender Expansive Children & Youth Psychiatry Grand Rounds Baystate Medical Center, Springfield, MA
March, 2015	Creating an Inclusive Experience for LGBT Patients & Families ***Human Rights Campaign Endorsed Training* Family Centered Care Grand Rounds The Children's Hospital of Philadelphia, Philadelphia, PA
March, 2015	Supporting Gender Non-Conforming Children & Youth in Primary Care CHOP at Virtua Care Center, Voorhees, NJ
March, 2015	Creating a Supportive Campus for All Students William Penn Charter School, Middle School, Philadelphia, PA
December, 2014	Understanding & Supporting Your Transgender Patient Family Practice Resident Training Hospital of the University of Pennsylvania, Philadelphia, PA
December, 2014	LGBT Inclusive Research Practice ***Human Rights Campaign Endorsed Training* PROSPER Research Training Children's Hospital of Philadelphia Research Institute, Philadelphia, PA
December, 2014	Creating Child Abuse Investigations Inclusive of Sexual Orientation & Gender Identity Philadelphia Children's Alliance Annual Conference, Philadelphia, PA
November, 2014	Affirmative Clinical Work with Gender-Expansive Children & Youth: Common Issues & Considerations Gender Spectrum East Conference, Baltimore, MD
October, 2014	Supporting Lesbian, Gay, Bisexual and/or Transgender Individuals & Families

	Montgomery Behavioral Health Provider Training Series, Norristown, PA
September, 2014	Creating a Supportive Campus for All Students William Penn Charter School, Upper School, Philadelphia, PA
June, 2014	Multidisciplinary Best Practice: Medical, Mental Health & Legal Perspectives 13th Annual Trans Health Conference, Philadelphia, PA
June, 2014	Supporting Non-Binary Children & Youth: A partnership between mental health and medical providers 13th Annual Trans Health Conference, Philadelphia, PA
February, 2014	Supporting LGBT Families in the NIICU ***Human Rights Campaign Endorsed Training* NIICU Medical Professional Day of Learning The Children's Hospital of Philadelphia, Philadelphia, PA
June, 2013	Contemporary Counseling with Transgender Children, Youth & Families 12th Annual Philadelphia Trans-Health Conference, Philadelphia, PA
April, 2013	Supporting Youth & Young Adults who are Living with HIV Marriage & Family Therapy Program Jefferson University, Philadelphia, PA
March, 2013	LGBT Child & Youth Update: Coming out, therapy needs & family support Marriage & Family Therapy Program Jefferson University, Philadelphia, PA
November, 2012	Creating the Ideal Patient Experience: Serving our Lesbian, Gay, Bisexual and/or Transgender Patients & Families Pride at CHOP Staff Training Seminar Series The Children's Hospital of Philadelphia
November, 2012	The Internet as a Factor in Gender Identity Development for Transgender and Gender Variant Adolescents Society for the Scientific Study of Sexuality Annual National Conference, Tampa, Florida
September, 2012	Building on Classroom Inclusion: Adding a Layer on Gender School-wide Training Greene Street Friends School, Philadelphia, Pennsylvania

DOC. 8-2

EXHIBIT 2

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D.; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity as Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON, in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official capacity as District Attorney for Jefferson County.

Defendants.

Civil Action No. 2:22-cv-184-LCB

DECLARATION OF MORISSA J. LADINSKY, MD, FAAP, IN SUPPORT OF PLAINTIFFS' MOTION FOR TEMPORARY RESTRAINING ORDER & PRELIMINARY INJUNCTION

I, Morissa J. Ladinsky, declare as follows:

1. I am an Associate Professor of Pediatrics at the University of Alabama at Birmingham ("UAB") School of Medicine.

2. I am a practicing physician and a member of the medical staff at the Children's Hospital of Alabama and UAB Hospital, both in Birmingham. I am co-lead of the multi-disciplinary gender clinic at UAB Hospital.

3. I obtained a bachelor's degree (magna cum laude) in Human Biology from Brown University in 1985. I obtained my medical degree (with honors) from Baylor University in 1990.

4. I was certified by the American Board of Pediatrics in 1993. I am licensed to practice medicine in Alabama. I have past licensure in Ohio, Maryland, and Texas when I previously practiced and resided in these states.

5. For the last 31 years, I have dedicated my practice to the medical care of young people. Throughout my career, my patients included transgender young people. Presently, those transgender patients live in Alabama, Mississippi, Florida, and Georgia.

6. Since starting at the gender clinic at UAB, I have treated approximately 250 transgender young people for gender dysphoria.

7. The treatment of gender dysphoria is well-established in the medical profession. This is not a pioneering or experimental area of medicine. There are comprehensive standards of care governing the treatment of gender dysphoria that were developed by the World Professional Association for Transgender Health (WPATH), founded in 1979, and Endocrine Society, in collaboration with the Pediatric Endocrine Society. These guidelines are recognized as the prevailing standard of care by the major associations of medical professionals, including the American Medical Association, American Academy of Pediatrics, and the Society for Adolescent Health and Medicine, to name a few. The current version of the WPATH standards of care have been in place for more than a decade.

8. The treatment of gender dysphoria is also part of medical school curricula across the country and world. In fact, this subject is taught as part of the endocrine module to all students at the UAB School of Medicine. The broader topic of transgender medicine is also found on every state board medical exam, including in Alabama.

9. Incorporated within the standards of care is a process each patient must follow before beginning any treatment for gender dysphoria. And, as with any treatment, we also follow a protocol for obtaining informed consent as part of that process. Standard protocol requires that medical treatment for gender dysphoria is

not prescribed until a patient meets the rigorous requirements outlined in the standards of care and consistent with an informed-consent process.

10. The informed consent procedures used by the gender clinic at UAB are very comprehensive. Patients at the clinic begin that process with their primary care provider and often community based mental health provider before they even have an initial appointment with a doctor like me. The patient's mental health provider thoroughly assesses the patient's mental health, maturity, presence and acuity of dysphoria and if indicated, ultimate readiness to undergo medical treatment for gender dysphoria. Using those assessments as our baseline, our multidisciplinary team begins its evaluation. We meet with the patient and their parents/legal guardians, review the risks, benefits, and alternatives of treatment, as medical and mental health providers do for all treatments. After that initial meeting, we meet with our patients at regular intervals for follow up, allowing us to monitor the patient's gender dysphoria as well as their overall physical and mental health over time. The team also provides families with materials to review and community-based supports and resources to connect with in the time between appointments.

11. Most of our patients are in the care of the gender clinic for one to three years before initiating medical treatment for gender dysphoria, depending on when they first come to the clinic and their individual healthcare needs. Even after that extended observation and assessment period, we will not prescribe any treatment

unless the full multidisciplinary team agrees that treatment is appropriate, and the patient and the patient's parents fully understand, have the capacity to consent, and sign the informed-consent forms. This process is intentionally set up to ensure all involved are making an informed, measured decision, from the healthcare providers to the patients and their parents.

12. Throughout this evaluation information-sharing process, patients are encouraged to avail themselves of the various services offered as part of our multidisciplinary clinic, including pastoral care. The purpose of these services is to get a full picture of a patient's health, wellbeing, household support, and functioning. Each of those data points help determine whether a potential treatment option may be appropriate for any given patient.

13. Once a patient begins medical treatment, their progress is monitored at regular intervals, typically every six months, to assess the efficacy of the prescribed treatment through a physical examination or laboratory tests. This ongoing monitoring also ensures ongoing evaluation of a patient's mental health and the chance to address any questions the patient or their parents may have.

14. I understand that Governor Ivey signed the Vulnerable Child Compassion and Protection Act (the "Act"). My understanding is that the Act expressly prohibits physicians, and others, from doing or saying anything that could cause a transgender young person, under age 19, in Alabama to undergo medical

treatment for gender dysphoria. I further understand that violating the Act exposes Alabama healthcare providers and others to criminal prosecution, which could result in a prison sentence or substantial fine.

15. Puberty-blocking medication and hormone-replacement therapy have greatly improved the physical and mental health and wellbeing of my patients. Denying my patients access to these well-established medical treatments will cause the mental health of many of my patients to regress, including increasing their suicidality and likelihood of attempting suicide. To cease ongoing care, without a medical basis, would violate my professional, ethical, and legal obligations by forcing me to harm my patient.

16. In the days since the Act was signed into law, I have met with numerous patients who are experiencing significant psychological distress due to the prospect of the Act going into effect. One teenage patient was visibly trembling in fear. Parents are regularly calling the clinic in tears. The uncertainty weighs heavily on the minds of my patients and their parents. And, for some, their worst fears have already started to materialize: several of my patients have reported to me that their pharmacies are refusing to fill prescriptions relating to the treatment of their gender dysphoria, including for menstrual suppression medications which are supposedly not criminalized by the Act.

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No. 22-11707

UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT

PAUL A. EKNES-TUCKER, et al.,
Plaintiffs-Appellees,

&

UNITED STATES OF AMERICA
Intervenor-Plaintiff-Appellee,

v.

GOVERNOR OF THE STATE OF ALABAMA, et al.,
Defendants-Appellants.

On Appeal from the United States District Court
for the Middle District of Alabama
Case No. 2:22-cv-184-LCB

APPELLANTS' APPENDIX VOLUME II OF XIII

Christopher Mills
SPERO LAW LLC
557 East Bay St.,
#22251
Charleston, SC 29451
(843) 606-0640
cmills@spero.law

Steve Marshall
Attorney General
Edmund G. LaCour Jr.
Solicitor General
A. Barrett Bowdre
Thomas A. Wilson
Deputy Solicitors General
James W. Davis
Deputy Attorney General
Benjamin M. Seiss
Assistant Attorney General
STATE OF ALABAMA
OFFICE OF THE ATTORNEY GENERAL
501 Washington Ave.
Montgomery, AL 36130
(334) 242-7300
Edmund.LaCour@AlabamaAG.gov

July 5, 2022

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EXHIBIT 3

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D.; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity as Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON, in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official capacity as District Attorney for Jefferson County.

Defendants.

Civil Action No.
2:22-cv-184-LCB

DECLARATION OF STEPHEN ROSENTHAL, MD, IN SUPPORT OF PLAINTIFFS' MOTION FOR TEMPORARY RESTRAINING ORDER & PRELIMINARY INJUNCTION

I, Stephen M. Rosenthal, M.D., declare as follows:

1. I submit this expert declaration based upon my personal knowledge.

2. If called to testify in this matter, I would testify truthfully based on my expert opinion.

Qualifications and Experience

3. I am a pediatric endocrinologist and have been practicing medicine for over forty years. I received my medical degree from Columbia University, College of Physicians & Surgeons, in 1976, and completed a residency in Pediatrics there. I also completed a fellowship in Pediatric Endocrinology at the University of California, San Francisco ("UCSF").

4. In 2012, I co-founded the Child & Adolescent Gender Center ("CAGC") at UCSF. I am the Medical Director at the Center, as well as a Professor of Clinical Pediatrics at UCSF. A true and correct copy of my Curriculum Vitae is attached hereto as **Exhibit A**.

5. The Child and Adolescent Gender Center (CAGC) is a multidisciplinary program that provides comprehensive medical and mental health care, as well as education and advocacy services for transgender youth and adolescents. Since 2012, the CAGC has seen close to 2,000 transgender young people with gender dysphoria, with an average of 15-20 new patients per month, ranging in age from 3 to 25 years old. As Medical Director of the CAGC, I oversee

the medical portion of the multidisciplinary program, which currently includes two other physicians, a doctor of nursing practice, one psychologist, a clinical social worker, nursing, and administrative staff.

6. As of the date of this declaration, I have published 27 scientific research papers in leading peer-reviewed medical journals and authored seven chapters in authoritative textbooks on the topic of medical treatment for gender dysphoria in children and adolescents. Those publications include "Challenges in the Care of Transgender and Gender-Diverse Youth: An Endocrinologist's View," published in Nature Reviews Endocrinology[1] on August 10, 2021, "Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline," a guide detailing the standard of medical care for gender dysphoria, and a chapter in the forthcoming standards of care being developed by WPATH. A listing of my publications is included in my Curriculum Vitae in **Exhibit A**.

7. I am also actively serving as a Principal Investigator or Co-Investigator on numerous research projects on the physical and mental health of transgender young people, including a national multi-site study on medical care for transgender young people funded by the NIH.

[1] Nature Reviews Endocrinology received an impact factor of 43.33 for the 2021-2022 publication year.

8. I am a member and recent past president (2016-2017) of the Pediatric Endocrine Society and, as of March, 2021, have just completed a three-year term as a member of the Board of Directors for the Endocrine Society, and one-year term as Endocrine Society Vice President, Clinical Scientist Position. I am also an elected member of the Board of Directors of the World Professional Association for Transgender Health ("WPATH"), an international multidisciplinary professional association founded in 1979 to promote evidence-based care, education, research, advocacy, public policy and respect in transgender health. A complete list of my professional associations is included in my Curriculum Vitae in **Exhibit A**.

9. In addition to my work with transgender children and adolescents, I have treated children and adolescents with differences of sex development ("DSD"), commonly referred to as intersex conditions, as well as with a variety of other endocrine conditions, including growth disorders, pubertal disorders, and diabetes. I previously served as Program Director for Pediatric Endocrinology, Director of the Endocrine Clinics, and Co-Director of the Disorders of Sex Development Clinic, a multi-disciplinary program involving pediatric endocrinology, pediatric urology, psychiatry, and social work at UCSF Benioff Children's Hospital.

10. My opinions contained in this declaration are based on: (i) my clinical experience as a pediatric endocrinologist treating transgender patients, including adolescents and young adults; (ii) my knowledge of the peer-reviewed research,

including my own, regarding the treatment of gender dysphoria, which reflects the clinical advancements in the field of transgender health; and (iii) my review of the expert declaration of Linda A. Hawkins, Ph.D., M.S.Ed., LPC ("Dr. Hawkins Decl.") submitted in support of the motions. I generally rely on these types of materials when I provide expert testimony, and they include the documents specifically cited as supportive examples in particular sections of this declaration. The materials I have relied on in preparing this declaration are the same type of materials that experts in my field of study regularly rely upon when forming opinions on the subject.

11. I was provided with and reviewed the following case-specific materials: the Dr. Hawkins Decl.

12. In the past four years, I have not provided expert testimony.

13. I am being compensated at an hourly rate for the actual time that I devote to this case, at the rate of $350 per hour for any review of records, preparation of reports or declarations. I will be compensated with a day rate (6 hours) of $2,100 for deposition and trial testimony. My compensation does not depend on the outcome of this litigation, the opinions that I express, or the testimony that I provide.

Scientific and Medical Understanding of Sex

14. By the beginning of the twentieth century, scientific research had established that external genitalia alone are not always an accurate indicator of a person's sex. Instead, a person's sex is comprised of several components, including,

among others, internal reproductive organs, external genitalia, chromosomes, hormones, gender identity, and secondary-sex characteristics. Diversity and incongruence in these components of a person's sex are a naturally occurring source of human biological diversity.

15. Scientific research and medical literature across disciplines demonstrate each component of sex has strong biological ties, including gender identity. For example, there are numerous studies detailing similarities in the brain structure and function of transgender and nontransgender people with the same gender identity. In one such study, the volume of the bed nucleus of the stria terminalis (a collection of cells in the central brain) in transgender women was equivalent to the volume found in nontransgender women. There are also studies highlighting the genetic components of gender identity. A study of identical twins found that if one twin was transgender that the other twin was far more likely to be transgender, as compared to the general population.

16. The above studies are representative examples of the growing body of scientific research and medical literature in this area of study. There is also ongoing research on the effects of the hormonal milieu in utero, and genetic sources for gender identity, among others.

17. Although the specific determinants of gender identity remain unknown, treatment to bring a person's physical characteristics into alignment with their

gender identity is widely accepted as the standard in medical practice.

Determination of an Individual's Sex

18. At birth, newborns are assigned a sex, either male or female, typically based solely on the appearance of their external genitalia. For most people, that assignment turns out to be accurate and their assigned sex matches that person's gender identity. However, for transgender people, their assigned sex does not align with their gender identity. This lack of alignment can create significant distress for transgender individuals.

19. When there is a divergence between these factors, medical science and the well-established standards of care recognize that treating a person consistent with their gender identity—and prescribing medical treatment to align their body with their gender identity—is essential to that person's health and wellbeing.

20. Gender identity is a person's inner sense of belonging to a particular gender, such as male or female. It is a deeply felt and core component of human identity. Everyone has a gender identity. Children usually become aware of their gender identity early in life.

21. A person's gender identity is innate, cannot be voluntarily changed, and is not undermined by the existence of other sex-related characteristics that do not align with it.

22. Any attempts to "cure" transgender individuals by forcing their gender

identity into alignment with their assigned sex are harmful, dangerous, and ineffective. Those practices have been denounced as unethical by all major professional associations of medical and mental health professionals, such as WPATH, the American Medical Association, the American Academy of Pediatrics, the American Psychiatric Association, and the American Psychological Association.

23. For more than four decades, the goal of medical treatment for transgender patients has been to alleviate their distress by bringing their lives into closer alignment with their gender identity. The specific treatments prescribed are based on individualized assessment conducted by medical providers in consultation with the patient's treating mental health provider. As discussed in more detail in the following section, and in the declaration of Dr. Hawkins, research and clinical experience have consistently shown those treatments to be safe, effective, and critical to the health and well-being of transgender patients.

Standards of Care for the Treatment of Gender Dysphoria

24. Due to the incongruence between their assigned sex and gender identity, transgender people experience varying degrees of "gender dysphoria," a serious condition listed in both the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders ("DSM-5") and the World Health Organization's International Classification of Diseases ("ICD-10"), and has been

recognized as such for decades. It is a condition that affects a small percentage of youth and adults.

25. Gender dysphoria is the diagnostic term for the clinically significant distress resulting from the incongruence between a person's gender identity and the sex they are assigned at birth. In order to be diagnosed with gender dysphoria, the incongruence must have persisted for at least six months and be accompanied by clinically significant distress or impairment.

26. Gender dysphoria is highly treatable and can be effectively managed. If left untreated, however, it can result in severe anxiety and depression, self-harm, and suicidality. Spack NP, Edwards-Leeper L, Feldmain HA, et al. Children and adolescents with gender identity disorder referred to a pediatric medical center. *Pediatrics*. 2012; 129(3):418-425. Olson KR, Durwood L, DeMeules M, McLaughlin KA. Mental health of transgender children who are supported in their identities. *Pediatrics*. 2016; 137:1-8.

27. The prevailing standards of care for the treatment of gender dysphoria are developed by WPATH, which has been recognized as the standard-setting organization for the treatment of gender dysphoria for more than forty years.

28. The Endocrine Society is a 100-year-old global membership organization representing professionals in the field of adult and pediatric endocrinology. In 2017, the Endocrine Society published its second clinical practice

guidelines on treatment recommendations for the medical management of gender dysphoria, in collaboration with Pediatric Endocrine Society, the European Societies for Endocrinology and Pediatric Endocrinology, and WPATH, among others. Hembree WC, Rosenthal SM, et al. Endocrine Treatment of Gender Dysphoria/Gender Incongruent Persons: An Endocrine Society Clinical Practice Guideline. *J Clin Endocrinol Metab* 2017; 102: 3869–3903.

29. Together, the SOC and the Endocrine Society's clinical practice guidelines constitute the prevailing standards guiding the healthcare and treatment of gender dysphoria. The process for writing those standard-setting documents followed well-established methods for developing standards of care, beginning with the convening a core group of experts in the relevant field(s) who are tasked with conducting a comprehensive literature review and preparing a draft document. That draft is then circulated to a larger cross-section of practitioners in the relevant field(s) for review and comment, much like the peer-review process for journals. Those edits and comments are incorporated and compiled into a final document that is reviewed and ratified in a manner consistent with the organization's bylaws. As a result, the SOC and the Endocrine Society's clinical practice guidelines reflect the consensus of experts in the field of transgender medicine, based on the best available science and clinical experience.

30. The major professional associations of medical and mental health providers in the United States, including the American Medical Association, American Academy of Pediatrics, American Psychiatric Association, American Psychological Association, and Pediatric Endocrine Society, treat those documents as the prevailing standards guiding the healthcare and treatment of gender dysphoria.

31. Those documents help ensure that healthcare providers, especially those unfamiliar with transgender medicine, know which treatments are safe and effective for the treatment of gender dysphoria, and are able to deliver that necessary medical care to maximize their patients' overall health and wellbeing.

Transition and Medical Treatments for Gender Dysphoria

32. Undergoing treatment to alleviate gender dysphoria is commonly referred to as a transition. The transition process typically includes one or more of the following three components: (i) social transition, including adopting a new name, pronouns, appearance, and clothing, and correcting identity documents; (ii) medical transition, including puberty-delaying medication and hormone-replacement therapy; and (iii) surgical transition, including surgeries to alter the appearance and functioning of primary- and secondary-sex characteristics.

33. The steps that make up a person's transition will depend on that individual's medical and mental health needs, as well as the person's stage of pubertal development.

34. Dr. Hawkins provides an extensive discussion of social transition in her expert declaration. (Dr. Hawkins Decl. at ¶¶ 26–31.) My declaration will discuss the medications and surgical care used to treat gender dysphoria.

35. There are no drug interventions for gender dysphoria until after the onset of puberty. Medical providers evaluate a patient's level of pubertal development through a physical examination and testing the hormone levels in the patient's blood. Once a provider has determined that a transgender patient has begun puberty, the patient may be prescribed puberty-blocking medications.

36. Those medications work by temporarily pausing endogenous puberty and, therefore, limiting the influence of a person's endogenous sex hormones on their body. For example, a transgender girl (someone designated male at birth with a female gender identity) will experience no progression of physical changes caused by testosterone, including facial and body hair, an Adam's apple, a deepened voice, or masculinized facial structures. And in a transgender boy (someone designated female at birth with a male gender identity), those medications would prevent progression of breast development, menstruation, and widening of the hips. This prevents a transgender adolescent from experiencing the severe psychological distress of developing permanent, unwanted physical characteristics that do not align with the adolescent's gender identity.

37. Temporarily halting a transgender adolescent's pubertal development can also obviate the need for future surgical treatments to address any ongoing gender dysphoria. Avoiding the scarring associated with surgery—and the added stresses of surgery itself—further improve a transgender person's overall health and wellbeing.

38. A transgender adolescent will remain on those puberty-blocking medications until their providers determine, in consultation with the patient, the patient's family, and consistent with the prevailing standards of care, whether additional medical treatment is necessary to treat their gender dysphoria. If the decision is to stop taking puberty blockers, the patient's endogenous puberty will resume.

39. For many transgender youth, it is medically necessary for them to begin hormone-replacement therapy with either testosterone or estrogen. That treatment induces the physical changes of the puberty associated with the patient's gender identity. The result of this treatment is that a transgender boy has the same typical levels of circulating testosterone as his nontransgender male peers. Similarly, a transgender girl will have the same typical levels of circulating estrogen as her nontransgender female peers. Those hormones cause transgender adolescents to undergo the same significant and permanent sex-specific physical changes as their nontransgender peers. For example, a transgender boy will develop a lower voice as

well as facial and body hair, while a transgender girl will experience breast growth, female fat distribution, and softer skin.

40. If a transgender youth who is on puberty blockers and hormone-replacement therapy ceases these medications, the production of endogenous hormones and puberty consistent with the individual's birth sex will resume.

41. Puberty-delaying medication and hormone-replacement therapy—both individually and in combination—also significantly improve a transgender young person's mental health because those medications ensure their physical appearance more closely aligns with their gender identity. This also decreases the likelihood that a transgender young person will be incorrectly identified with their birth sex, further alleviating their gender dysphoria and bolstering the effectiveness of their social transition.

42. The puberty-delaying medications that are used for treating transgender children are the same medications that have been used for decades and are continued to be used to treat a condition in children often referred to as "precocious puberty," a condition that causes a child's body to begin pubertal development too early. In other words, the hormone therapy used to treat transgender adolescents is often used to treat non-transgender adolescents for other medical reasons.

43. Social transition and hormone therapy are often sufficient to treat gender dysphoria for many transgender people.

44. Based on my clinical experience, there are transgender young people for whom getting on puberty blockers and hormones before the age of majority will reduce the likelihood of their needing surgical intervention later in life relating to gender dysphoria.

45. Further, recent studies have observed findings that gender-affirming hormone therapy usage is significantly related to lower rates of depression and suicidality among transgender youth. Green AE et al. Association of Gender-Affirming Hormone Therapy With Depression, Thoughts of Suicide, and Attempted Suicide Among Transgender and Nonbinary Youth. *J Adolescent Health* 1-7 (2021); Turban JL et al. Access to gender-affirming hormones during adolescence and mental health outcomes among transgender adults. PLoS ONE 17(1) 2021; https://doi.org/10.1371/journal. pone.0261039.

46. For transgender people who require surgery to treat their gender dysphoria, the SOC do not recommend surgical treatment until the age of majority, except for male chest reconstruction surgery. Like any other treatment, the medical necessity of surgical procedures to treat gender dysphoria is based on an individualized assessment of the patient's needs.

Assessing Medical Necessity of Medical Treatment for Gender Dysphoria

47. As with the initial diagnosis of gender dysphoria, determining whether a particular treatment is medically necessary for a transgender patient follows a

thorough, well-established process that requires healthcare providers to exercise professional judgment. Contrary to what some believe, prescriptions for puberty-blocking medication and hormone-replacement or referrals for surgery are not made on a whim. Every step of a transgender patient's treatment and care is planned out in consultation with the patient's care team, which includes both medical and mental health providers.

48. Prior to considering starting a course of puberty-blockers or hormone-replacement therapy, a transgender patient undergoes an extensive assessment by a mental health provider. The purpose of that assessment is three-fold: (1) obtaining a complete picture of the patient's mental health, including whether the patient has gender dysphoria; (2) determine the patient's psychological readiness to begin the contemplated treatment; and (3) provide the patient and their family the information they need to make an informed decision about whether to proceed with the treatment. If, after that assessment, the mental health provider determines that the patient should be considered for the contemplated treatment, that professional opinion is documented in a letter to the patient's medical provider.

49. The medical provider then conducts their own separate assessment of the patient, including a physical examination and any necessary laboratory testing. In addition to determining the medical necessity of the contemplated treatment and a patient's medical readiness for that treatment, the medical provider will also

discuss the risks, benefits, and alternatives for the contemplated treatment. Medical providers also discuss with parents that the medications are being prescribed for an off-label use, which is particularly common for medications being used in pediatric patients. That discussion occurs with the patient and their family to ensure that everyone involved in the decision-making process has the information they need to make an informed decision.

50. Once the medical provider has finished addressing any questions or concerns raised by the patient and family, the parents/legal guardians and the patient are provided with a detailed informed consent/assent form that outlines in writing the information the medical provider reviewed with them. The patient and family are encouraged to carefully review that paperwork and sign if they choose to consent/assent to treatment.

51. It is only at the end of that intensive assessment and informed-consent process that a patient is prescribed a particular medical treatment for gender dysphoria.

Medical Treatment for Gender Dysphoria is Evidence-Based Medicine

52. Research and clinical experience repeatedly reaffirm that transition significantly improves the mental and physical health of transgender young people.

53. This is true of each stage of a transgender young person's transition. Transgender young people who underwent a social transition in childhood

demonstrated better mental health profiles than prior studies of gender nonconforming children. *See* Lily Durwood, et al., *Mental Health and Self-Worth in Socially Transitioned Transgender Youth*, 56 J. Am. Acad. of Child & Adol. Psychiatry 116 (2017); Kristina Olson, et al., *Mental Health of Transgender Children who are Supported in Their Identities*, 137 Pediatrics 1 (2016). This same outcome has also been seen in a longitudinal study of transgender young people who underwent each of the three stages of transition outlined above. Annelou L.C. de Vries, et al., *Young Adult Psychological Outcome After Puberty Suppression and Gender Reassignment*, 134 Pediatrics 696 (2014). In a study specifically about male chest reconstruction surgery, post-operative transgender young people demonstrated significant psychological and functional improvements, from a greater willingness to plan for their future and to engage activities of daily living (e.g., bathing, buying clothing). Johanna Olson-Kennedy, et al., *Chest Reconstruction and Chest Dysphoria in Transmasculine Minors and Young Adults Comparisons of Nonsurgical and Postsurgical Cohorts*, 172 JAMA Pediatrics 431, 434 (2018)

54. Transition also can—and often does—alleviate co-occurring mental health issues a transgender young person experienced prior to transition. Following transition, transgender young people typically see significant improvements in functioning and quality of life. Treating their gender dysphoria also increases a

transgender young person's capacity to develop and maintain better coping strategies to manage any co-occurring conditions.

55. Conversely, delaying or denying transgender young people safe and effective treatment for gender dysphoria—as contemplated by the wait-and-see approach—can have severe consequences on their physical and mental health. Without those medically necessary treatments, transgender young people are likely to develop serious co-occurring mental health conditions (*i.e.* anxiety, depression, suicidality) that will interfere with their ability to learn and impede their psychosocial development.

Conclusion

56. Alabama's law criminalizing the provision of medical treatment for gender dysphoria is contrary to well-established standards of care, peer-reviewed medical literature, and clinical experience. Medical care for transgender young people in Alabama would be guided by fear of criminal penalty, forcing medical providers to abandon their professional and ethical obligations to follow the prevailing standards of care when treating patients with gender dysphoria.

57. Contrary to its stated purpose, this bill will endanger the health and wellbeing of transgender young people experiencing gender dysphoria by creating significant barriers to their receiving medically necessary care. The lack of access to

that time-sensitive care will have lifelong implications for their quality of life and their ability to effectively treat their gender dysphoria.

This declaration was executed this 19th day of April, 2022.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct.

By: Stephen M. Rosenthal
Stephen M. Rosenthal, M.D.

EXHIBIT A

Prepared: May 26, 2020

University of California, San Francisco

CURRICULUM VITAE

Name: Stephen M Rosenthal, MD

Position: Recalled Faculty
Pediatrics
School of Medicine

Address: Mission Hall, Box 0434
550 16th Street, 4th Floor
University of California, San Francisco
San Francisco, CA 94143
Voice: 415-476-2266
Fax: 415-476-5356
Email: Stephen.Rosenthal@ucsf.edu

EDUCATION

1968 - 1972	Yale University	BA	Psychology
1972 - 1976	Columbia University, Colege of Physicians & Surgeons	MD	
1976 - 1977	Columbia University, Presbyterian Hospital	Intern	Pediatrics
1977 - 1979	Columbia University, Presbyterian Hospital	Resident	Pediatrics
1979 - 1982	University of California, San Francisco	Fellow	Pediatric Endocrinology

LICENSES, CERTIFICATION

1980	Medical License, California, #G42045
1982	American Board of Pediatrics
1983	American Board of Pediatric Endocrinology

PRINCIPAL POSITIONS HELD

1982 - 1983	University of California, San Francisco	Instructor	Pediatrics
1983 - 1992	University of California, San Francisco	Assistant Professor in Residence	Pediatrics
1992 - 1998	University of California, San Francisco	Associate Professor in Residence	Pediatrics

1998 - 2012	University of California, San Francisco	Professor in Residence	Pediatrics
2012 - present	University of California, San Francisco	Professor of Clinical Pediatrics	Pediatrics

OTHER POSITIONS HELD CONCURRENTLY

2006 - 2015	University of California, San Francisco	Director, Pediatric Endocrine Outpatient Services	Pediatrics
2008 - 2011	University of California, San Francisco	Associate Program Director, Pediatric Endocrinology	Pediatrics
2008 - 2018	University of California, San Francisco	Pediatric Endocrine Director, Disorders of Sex Development (DSD) Clinic	Pediatrics
2011 - present	University of California, San Francisco	Medical Director, Child & Adolescent Gender Center	Pediatrics
2012 - 2015	University of California, San Francisco	Program Director, Pediatric Endocrinology	Pediatrics

HONORS AND AWARDS

2011	Nominated for the Chancellor's Award for Gay, Lesbian, Bisexual, and/or Transgender Leadership for a faculty member	University of California, San Francisco
2012	Nominated for the Chancellor's Award for Gay, Lesbian, Bisexual, and/or Transgender Leadership for a faculty member	University of California, San Francisco
2012	Family Advisory Council Caring Tree Award	UCSF Benioff Children's Hospital
2013	Chancellor's Award for Gay, Lesbian, Bisexual, and Transgender (GLBT) Leadership in the faculty category	University of California, San Francisco

2014	Haile T. Debas Academy of Medical Educators Excellence in Teaching Award	University of California, San Francisco
2018	Harry Benjamin Lectureship, World Professional Association for Transgender Health, for significant contributions to the field of transgender health through research, healthcare provision and medical education	World Professional Association for Transgender Health

KEYWORDS/AREAS OF INTEREST

Biology of gender, transgender, Disorders of Sex Development (DSD), Insulin-like Growth Factors (IGFs), neuroblastoma, water balance disorders, Type 1 Diabetes, medical education, fellowship training.

CLINICAL ACTIVITIES

CLINICAL ACTIVITIES SUMMARY

I currently serve as Medical Director, Child and Adolescent Gender Center, a UCSF/ Community partnership designed to provide multidisciplinary services for pediatric and adolescent gender nonconforming/ transgender patients. I have served as Pediatric Endocrine Director, Disorders of Sex Development (DSD) monthly clinic, a multi-disciplinary program involving Pediatric Endocrinology, Pediatric Urology, Psychiatry, and Social Work. I currently Attend in the out-Patient clinics: Currently, 2 clinics/ week.

PROFESSIONAL ACTIVITIES

MEMBERSHIPS

1983 - present	The Endocrine Society
1983 - present	The Pediatric Endocrine Society (formerly known as the Lawson Wilkins Pediatric Endocrine Society)
1983 - 2000	Western Society for Pediatric Research
1986 - present	The Society for Pediatric Research
2011 - present	World Professional Association for Transgender Health (WPATH)

SERVICE TO PROFESSIONAL ORGANIZATIONS

1990 - 1993	Pediatric Endocrine Society	Member, Organizing Committee for the Combined Lawson Wilkins Pediatric Endocrine Society and the European Endocrine Society IV International Meeting

1999 - 1999	Society for Insulin-like Growth Factor Research	Member, Scientific Planning Committee, 5th International Symposium on Insulin-Like Growth Factors, Brighton, UK
2000 - 2005	Pediatric Endocrine Society	Member, Drug and Therapeutics Committee
2002 - 2005	The Endocrine Society	Member, Special Programs Committee
2003 - 2004	Pediatric Endocrine Society	Chair, Drug and Therapeutics Committee
2005 - 2008	The Endocrine Society	Member, Science and Educational Programs Core Committee
2006 - 2006	Eli Lilly Co.	Member, National Growth Hormone Clinical Physicians Advisory Panel
2007 - 2013	Pediatric Endocrine Society	Member, Ethics Committee
2007 - 2007	Pediatric Endocrine Society, Growth Hormone Research Society, and European Society of Pediatric Endocrinology	Member, Consensus Workshop Committee on Diagnosis and Management of Idiopathic Short Stature
2008 - present	The Endocrine Society	Abstract Reviewer/Grader
2008 - 2011	The Endocrine Society	Member, Annual Meeting Steering Committee
2009 - 2009	Pediatric Endocrine Society and European Society of Pediatric Endocrinology	Abstract Reviewer/Grader

2009 - 2011	The Endocrine Society	Team Leader, Annual Meeting Steering Committee
2010 - 2013	Pediatric Endocrine Society	Elected to Board of Directors
2012 - 2012	The Endocrine Society	ENDO 2012 Presidential Poster Competition Judge
2012 - 2015	Pfizer, Inc.	Review Committee: ASPIRE Young Investigator Awards in Endocrine Research
2012 - 2015	The Endocrine Society	Member, Clinical Endocrine Education Committee
2012 - present	Pediatric Endocrine Society	Member, Honors Committee
2013 - 2017	Pediatric Endocrine Society	Member, Maintenance of Certification Committee
2014 - 2017	Endocrine Society and Pediatric Endocrine Society	Official representative of Pediatric Endocrine Society to Endocrine Society's Clinical Practice Guidelines Revision Task Force for the Care of Transgender Individuals
2015 - 2016	Pediatric Endocrine Society	President-elect
2016 - 2017	Pediatric Endocrine Society	President
2017 - 2018	Pediatric Endocrine Society	Immediate Past President
2017 - 2018	Pediatric Endocrine Society	Chair, Honors and Awards Committee
2018 - 2019	Endocrine Society	Vice President, Clinical Scientist Position

2019 - present	Endocrine Society	Member, Board of Directors

SERVICE TO PROFESSIONAL PUBLICATIONS

1986 - present	Reviewer, Journal of Clinical Endocrinology and Metabolism
1987 - present	Reviewer, Endocrinology
1991 - 1993	Reviewer, DNA and Cell Biology
1991 - 2000	Reviewer, Life Sciences
1992 - present	Reviewer, Diabetes
1993 - 2008	Reviewer, Cancer Research
1994 - present	Reviewer, Molecular Endocrinology
1995 - present	Reviewer Journal of Cell Physiology
1996 - 2000	Reviewer, Journal of Cell Biology
1998 - 2008	Reviewer, Journal of Biological Chemistry
2006 - present	Reviewer, Journal of Pediatric Endocrinology and Metabolism
2010 - present	Reviewer, International Journal of Pediatric Endocrinology
2015 - 2018	Associate Editor, Transgender health
2015 - present	Editorial Board Member, International Journal of Transgenderism

INVITED PRESENTATIONS - INTERNATIONAL

1984	7th International Congress of Endocrinology, Quebec, Canada	Lecture
1985	Symposium "Therapeutic Agents Produced by Genetic Engineering: Quo Vadis? - The Example of Growth Hormone and Its Releasing Factor", Toulouse, France,	Invited lectures (2)
1985	28 emes Journees Internationales Henri-Pierre Klotz D'Endocrinologie Clinique, Paris, France	Invited lecture
1986	1st International Congress of Neuroendocrinology, San Francisco	Invited lecture
1988	GRF Symposium, Sanofi Group, Paris, France	Invited lecture
1990	Serono Symposium "Major Advances in Human Female Reproduction", Rome, Italy	Invited lecture and Session chair
1990	3rd International Symposium on Molecular and Cellular Biology of Insulin and IGFs, Gainesville, FL	Poster
1991	2nd International Symposium on Insulin-Like Growth Factors/Somatomedins, San Francisco,	Posters (2)

1992	9th International Congress of Endocrinology, Nice, France	Poster
1993	4th International Symposium on Insulin, IGFs, and Their Receptors, Marine Biological Laboratory, Woods Hole, MA	Poster
1993	LWPES/ESPE Fourth Joint Meeting, San Francisco, CA	lecture, Poster, & Session chair
1994	The Third International Symposium on Insulin-Like Growth Factors, Sydney, Australia	Invited lecture
1994	AgResearch, Hamilton, New Zealand (lecture title: "Insulin-like Growth factors and Skeletal Muscle Differentiation")	Invited lecture and Visiting Professor
1994	Jacques Ducharme Annual Lectureship, University of Montreal, Canada	Invited lecture
1995	5th International Symposium on Insulin and IGFs, Gainesville, FL	Poster
1996	10th International Congress of Endocrinology, San Francisco, CA	Platform
1997	5th Joint Meeting of the European Society for Pediatric Endocrinology and the Lawson Wilkins Pediatric Endocrine Society, Stockholm, Sweden	Platform
1997	4th International Symposium on Insulin-like Growth Factors, Tokyo, Japan	Platform
1999	5th International Symposium on Insulin-like Growth Factors, Brighton, UK	Platform, Session chair, Member, Scientific Planning Committee
2000	Symposium Medicus Conference on Adolescent Medicine, Ixtapa, Mexico	Invited lectures (3)
2001	6th Joint Meeting of the European Society for Pediatric Endocrinology and the Lawson Wilkins Pediatric Endocrine Society, Montreal, Canada	Platform
2001	William Soler Children’s Hospital, Havana, Cuba	Invited lecture and Visiting Professor
2002	First Joint Symposium GH-IGF 2002, Boston, MA	Platform
2002	2nd Cuban Symposium on Immunology of Diabetes, Havana, Cuba	Invited lecture

2005	Canadian Society of Endocrinology and Metabolism and Canadian Diabetes Association Annual Meeting, Edmonton, Alberta, Canada, (Pediatric Symposium on: Activating Mutations: Genetic Basis and Therapeutic Implications)	Invited lecture
2006	38th International Symposium: GH and Growth Factors in Endocrinology and Metabolism, Granada Spain, ["Hot Topics" session: Lecture title: "Nephrogenic Syndrome of Inappropriate Antidiuresis (NSIAD): A Paradigm for Activating Mutations Causing Endocrine Dysfunction]	Invited lecture
2006	Sanofi-Aventis, Paris, France, (Lecture title: "Potential Use of Selective V2 Vasopressin Receptor Antagonists as Inverse Agonists in the Treatment of Nephrogenic Syndrome of Inappropriate Antidiuresis")	Invited lecture
2006	Primary Insulin-like Growth Factor-I Deficiency (IGFD) International Advisory Board Meeting, Tercica, Inc., San Francisco, CA,	Invited speaker
2007	1er Simposio Argentino Noditropin Simplex en Endocrinologia Pediatrica, Punta del Este, Uruguay, (Lecture titles: "Primary IGF-I Deficiency"; and "Activating Mutations of the V2 Vasopressin Receptor")	Invited Plenary Lectures (2)
2007	GeNeSIS Investigators Meeting, Paris, France, (Panel : "Growth Attenuation: Current Concepts and Controversies")	Invited Panel Member
2007	Idiopathic Short Stature (ISS) Consensus Conference/International Meeting, Santa Monica, CA	Invited participant and Session chair
2008	5th Biennial Scientific Meeting of the Asia Pacific Pediatric Endocrine Society, Seoul, Korea, [Lecture title: "Nephrogenic Syndrome of Inappropriate Antidiuresis (NSIAD): Recent Insights"]	Invited Plenary Lecture
2009	Nordiscience Forum (Novo Nordisk's International Scientific Meeting), Kyoto, Japan, (Lecture title: "Disorders of Water Balance and the Nephrogenic Syndrome of Inappropriate Antidiuresis")	Invited Plenary Lecture
2009	Osaka University, Osaka, Japan (Lecture title: "IGFs: Links to Cancer and Longevity")	Invited Lecture/Visiting Professor
2009	National Center for Child Health and Development, Tokyo, Japan (Lecture title: "Growth as a Barometer of Health")	Invited Lecture

2010	The Society for Pediatric Research/ Lawson Wilkins Pediatric Endocrine Society, Vancouver, Canada, ("Meet-the Professor" title: "Career Development: What's Next After Fellowship?")	Invited speaker/ "Meet-the Professor"
2011	9th Winter Symposium, Department of Child Health, Christian Medical College, Vellore, India (Lecture title: "Water & Sodium Balance: Current Concepts & Clinical Implications")	Invited Plenary Lecture
2011	World Professional Association for Transgender Health (WPATH) Biennial Symposium (International), Atlanta, GA	Invited speaker/ panel presentation
2012	1st St. Luke's International Conference on Pediatrics: Enhancing Pediatric Care with the Experts, Global City, Taguig City (Manila), Philippines (2 Lectures: "Gender Non-Conforming/Transgender Youth: Endocrine Considerations"; "Abnormalities of Puberty"; Case Discussant: "Disorders of Sex Development")	Invited Plenary Lectures
2013	World Professional Association for Transgender Health (WPATH) ICD-11 Consensus Meeting, San Francisco, CA	Invited Participant
2014	World Professional Association for Transgender Health (WPATH) Biennial Symposium, Bangkok, Thailand	Invited Symposium speaker
2014	Chulalongkorn University, Bangkok, Thailand (Lecture title: "Gender Nonconforming Transgender Youth: Endocrine Considerations")	Invited Lecture/Visiting Professor

INVITED PRESENTATIONS - NATIONAL

1983	The Endocrine Society Annual Meeting	Platform
1985	Endocrine Days, Seattle Washington	Invited lecture
1986	The Endocrine Society Annual Meeting	Platform
1987	The Clinical Research Center Program Directors' Biennial Meeting, NIH, Williamsburg, VA	Lecture
1987	Growth Disorders: Diagnostic and Therapeutic Dilemmas, Eli Lilly, Boston, MA	Invited lecture
1989	Society for Pediatric Research Annual Meeting	Poster
1990	Society for Pediatric Research Annual Meeting	Poster
1990	The Endocrine Society Annual Meeting	Poster
1990	American Academy of Pediatrics Postgraduate Course "Recent Advances in Endocrinology", Seattle, WA	Invited lectures (2)

1990	Eli Lilly Symposium "Roundtable Discussion Group on Current Issues in Pediatric Endocrinology", Dallas, TX	Invited lecture and Session chair
1991	NIH Workshop on Biological Consequences of Early Placental Loss, San Juan, Puerto Rico	Invited lecture
1991	The Endocrine Society Annual Meeting	Poster
1992	American Academy of Pediatrics Annual Meeting, San Francisco, CA	Invited lecture
1992	The Endocrine Society Annual Meeting	Poster
1994	The Endocrine Society Annual Meeting	Poster and Session chair
1994	Genentech National Cooperative Growth Study Symposium, Orlando, FL	Session Chair
1995	American Academy of Pediatrics, PREP: The Course, Santa Monica, CA	Invited lectures (2)
1995	The Endocrine Society Annual Meeting	Poster
1995	American Academy of Pediatrics, PREP: The Course, Minneapolis, MN	Invited lectures (2)
1997	The Endocrine Society Annual Meeting	Poster
1998	The Endocrine Society Annual Meeting	Poster
1999	The Endocrine Society Annual Meeting	Poster
2000	The Endocrine Society Annual Meeting	Poster and Session chair
2001	The Endocrine Society Annual Meeting	Poster
2002	The Endocrine Society Annual Meeting	Poster
2004	The Endocrine Society Annual Meeting	Poster
2003	Society for Women’s Health Research: Fourth Annual Conference on Sex and Gene Expression, Winston-Salem, NC	Invited lecture and Session chair
2004	Society for Pediatric Research Annual Meeting	Poster
2005	The Endocrine Society Annual Meeting	Poster
2005	American Academy of Pediatrics, PREP: The Course, Miami, FL	Invited lectures (2)
2005	American Academy of Pediatrics, PREP: The Course, Portland, OR	Invited lectures (2)
2005	GeNeSIS Symposium and Investigators Meeting, Washington, D.C.	Session chair

2006	The Endocrine Society Annual Meeting, Boston, MA (Symposium lecture title: “How We Define IGF-I Deficiency”)	Invited lecture
2006	The Endocrine Society’s Clinical Endocrinology Update Course, San Francisco, CA (Lecture title/ “Meet-the Professor”: “Management of Type 2 Diabetes in Adolescence”)	Invited lecture/ "Meet-the-Professor"
2006	Serono GH Monitor Investigator Meeting, Symposium on Disorders of Water Balance, San Francisco, CA, 2006	Invited Plenary Lecture
2007	The Endocrine Society Annual Meeting	Poster
2008	American Academy of Pediatrics, PREP: The Course, Tempe, AZ, 2008	Invited lectures (2)
2008	The Endocrine Society Annual Meeting	Poster
2008	Society for Pediatric Research Annual Meeting	Session Co-Chair
2008	Lawson Wilkins Pediatric Endocrine Society Annual Meeting	Session Co-Chair
2009	American Academy of Pediatrics, PREP: The Course, Savannah, GA	Invited lectures (2)
2009	The Endocrine Society Annual Meeting, Washington, DC (Lecture title/ “Meet-the-Professor”: “Hyponatremia in Infants & Children”)	Invited speaker/ "Meet-the-Professor"
2009	The Endocrine Society Annual Meeting	Poster
2009	American Academy of Pediatrics, PREP: The Course, Portland, OR	Invited lectures (2)
2009	Disorders of Sex Development (DSD) Research and Quality Improvement Symposium, University of Michigan Initiative on Rare Disease Research, Ann Arbor, MI	Invited participant
2010	The Endocrine Society Annual Meeting, San Diego, CA (Lecture title/ “Meet-the-Professor”: “Hyponatremia in Infants & Children”)	Invited speaker/ "Meet-the-Professor"
2010	American Academy of Pediatrics, NeoPREP, Newport Beach, CA	Invited lectures (2)
2012	45th Annual Advances & Controversies in Clinical Pediatrics, UCSF, San Francisco, CA (Lecture title: "Gender-Variant/Transgender Youth: Endocrine Considerations")	Invited lecture
2012	The Endocrine Society Annual Meeting	Session Co-Chair
2012	American Academy of Pediatrics, PREP: The Course, San Diego, CA	Invited Lecture and Case Presentations

2013	Miami Children's Hospital 16th Annual Pediatric Board Review Course	Invited Lecture and Case Presentations
2013	National Transgender Health Summit (sponsored by UCSF), Oakland, CA (Lecture title/"The Biology of Gender")	Invited Lecture and Panel Presentations
2013	Pediatric Endocrine Society Annual Meeting: Plenary Ethics Debate: "Approach to the Prepubertal Gender Non-Conforming Child: Should Intervention Attempt to Support the Assigned or Affirmed Gender?"	Program Chair and Speaker
2013	American Academy of Pediatrics, PREP: The Course, Portland, OR	Invited Lecture and Case Presentations
2013	The Endocrine Society Annual Meeting	Symposium Chair
2013	American Academy of Pediatrics: "Mind Matters for Pediatric Practitioners", San Francisco, CA (Lecture title: "Gender Nonconforming/ Transgender Youth: Endocrine Considerations")	Invited Lecture
2014	American Academy of Pediatrics, NeoPREP: An Intensive Review and Update of Neonatal/Perinatal Medicine, San Diego, CA (Lecture title: "Neontal Thyroid Disorders")	Invited lecture
2014	UCSF CME: Diabetes Update and Advances in Endocrinology and Metabolism (Lecture title: "Gender Nonconforming/ Transgender Youth: Endocrine Considerations")	Invited Lecture
2014	1st Annual Disorders of Sex Development-Translational Research Network (DSD-TRN)) and Accord Alliance (AAN) Workshop, Phoenix Children's Hospital, Phoenix, AZ	Invited participant
2014	Endocrine Society Annual Meeting	Symposia (2) Chair
2014	UCSF CME: Current Trends in DSD Management	Course Chair and Lecturer

INVITED PRESENTATIONS - REGIONAL AND OTHER INVITED PRESENTATIONS

1983	Pediatric Grand Rounds, John Muir Hospital, Veterans Administration Hospital, San Francisco, Santa Rosa Community Hospital, Fresno Valley Children's Hospital, University of the Pacific, Mt. Zion Hospital, Oak Knoll Naval Hospital	Invited lectures
1984	Pediatric Grand Rounds, UCSF	Invited lecture
1985	Pediatric Grand Rounds, UCSF	Invited lecture

1985	Western Socity for Pediatric Research Annual Meeting	Platform
1986	Pediatric Grand Rounds, UCSF	Invited lecture
1987	Pediatric Grand Rounds, UCSF	Invited lecture
1989	Visiting Professor, University of Florida, Gainesville, FL	Invited lecture
1989	Visiting Professor, University of Pittsburgh, Pittsburgh, PA	Invited lecture
1989	Pediatric Grand Rounds, UCSF	Invited lecture
1990	Pediatric Grand Rounds, UCSF	Invited lecture
1992	Rocky Mountain Endocrine Society, Salt Lake City, UT	Invited lectures (2)
1993	Western Socity for Pediatric Research Annual Meeting	Session Co-Chair
1993	Organization of Pediatric Endocrinologists of California, Sonoma, CA	Invited lecture
1993	Pediatric Grand Rounds, San Francisco General Hospital	Invited lecture
1994	Organization of Pediatric Endocrinologists of California, Yosemite, CA	Meeting Chair
1995	Pediatric Grand Rounds, San Francisco General Hospital	Invited lecture
1997	Visiting Professor, University of Utah, Salt Lake City, UT	Invited lecture
1998	Visiting Professor, University of Washington, Seattle, WA	Invited lecture
1998	American Academy of Pediatrics Annual Meeting, St. Petersburg, Florida	Invited lecture
1998	Genentech, Inc., South San Francisco, CA	Invited lecture
1998	Pediatric Grand Rounds, Fresno Medical Education Program	Invited lecture
1999	Pediatric Grand Rounds, UCSF	Invited lecture
2000	Natural Cooperative Growth Study (co-sponsored by University of Oregon and Genentech, Inc.), San Francisco, CA	Invited lecture
2000	“Advances and Changing Trends” (Pediatrics), The Lloyd Noland Foundation, Orlando, FL	Invited lectures (2)
2000	Michigan State Medical Society Annual Scientific Meeting, Detroit, MI	Invited Plenary Lecture
2000	Pediatric Grand Rounds, San Francisco General Hospital	Invited lecture

2001	UCSF Diabetes Center (Lecture title: "Insulin-like Growth Factors and Skeletal Muscle Differentiation")	Invited lecture
2002	“Ninth Annual Pediatrics Update”, The Lloyd Noland Foundation, Hilton Head Island, SC	Invited lectures (3)
2003	Symposium Medicus Conference on Adolescent Medicine, Puerto Rico	Invited lectures (3)
2004	Pediatric Grand Rounds, UCSF (Lecture title: “Insulin-like Growth Factors: Not Really Like Insulin”)	Invited lecture
2005	Endocrine Grand Rounds, UCSF (Lecture title: “Nephrogenic Syndrome of Inappropriate Antidiuresis”)	Invited lecture
2005	Symposium Medicus Conference on Pediatrics, Yosemite, CA	Invited lectures (3)
2006	Pediatric Grand Rounds, Childrens Hospital Los Angeles, University of Southern California (Lecture title: “Nephrogenic Syndrome of Inappropriate Antidiuresis")	Invited lecture
2006	UCSF Diabetes Update and Advances in Endocrinology and Metabolism, “Nephrogenic Syndrome of Inappropriate Antidiuresis (NSIAD): A Paradigm for Activating Mutations Causing Endocrine Disease”, San Francisco, CA	Invited lecture
2006	“Childhood Matters” Radio Show, “Diabetes in Childhood: Who’s at Risk?”, KISS-FM, San Francisco, CA	Invited speaker (radio)
2006	Pediatric Grand Rounds, Sutter Medical Center, Santa Rosa, CA (Lecture title: “Growth as a Barometer of Health”)	Invited lecture
2006	Pediatric Grand Rounds, California Pacific Medical Center, San Francisco, CA (Lecture title: “Growth Hormone and IGF-I Treatment for Short Stature: Current Concepts and Controversies”)	Invited lecture
2007	Pediatric Endocrine Grand Rounds, University of California Los Angeles (Lecture title: “Activating V2 Vasopressin Receptor Mutations")	Invited lecture
2007	UCSF Pediatric Diabetes Symposium: “Type 1 Diabetes: Primary and Secondary Prevention”	Invited lecture
2008	Pediatric Grand Rounds, University of Massachusetts, Baystate Children’s Hospital: “Nephrogenic Syndrome of Inappropriate Antidiuresis (NSIAD): A Paradigm for Activating Mutations Causing Endocrine Dysfunction"	Invited lecture

2008	UCSF Pediatric Diabetes Symposium: “Can We Prevent Type 1 Diabetes? : Research Update”	Invited lecture
2008	Juvenile Diabetes Research Foundation, Hawaii Chapter, Honolulu, HI: “Update in Type I Diabetes Research: Honeymoon Prolongation and Primary Prevention"	Invited lecture
2009	Organization of Pediatric Endocrinologists of California, San Francisco, CA, “IGFs: Links to Cancer and Longevity”	Invited lecture
2009	Pediatric Grand Rounds, Marin General Hospital, San Francisco, CA, (Lecture title: “Growth Disorders: Current Concepts and Management”)	Invited lecture
2009	Pediatric Grand Rounds, San Francisco General Hospital (Lecture title: “Gender Identity Disorder in Pre-Adolescents & Adolescents”)	Invited lecture
2009	UCSF School of Medicine, Pediatric Interest Group: “Career Development in Pediatric Endocrinology"	Invited speaker
2010	Pediatric Grand Rounds, UCSF (Lecture title: “Gender Variant/ Transgender Youth: Endocrine Considerations”)	Invited lecture
2010	Children’s Hospital Oakland Research Institute, Oakland, CA, “Gender Variant/ Transgender Youth: Endocrine Considerations”	Invited lecture
2010	Symposium Medicus Conference on Pediatrics (Lecture titles: “Abnormalities of Puberty”, “Update in Type 1 Diabetes”, “Growth as a Barometer of Health”) Kauai, Hawaii	Invited lectures (3)
2010	Gender Spectrum 4th Annual Family Conference (Lecture title: “The Use of Pubertal Blockers in Gender Variant Youth”, Berkeley, CA	Invited lecture
2010	UCSF School of Medicine, Pediatric Interest Group: “Career Development in Pediatric Endocrinology"	Invited speaker
2010	UCSF Pediatric Noon Cnference Series (Lecture title: "Neonatal Thyroid Disorders")	Invited lecture
2011	Pediatric Grand Rounds, Riley Hospital, University of Indiana, Indianapolis, IN, (Lecture title: "Gender Variant/Transgender Youth: Endocrine Considerations")	Invited lecture
2011	Pediatric Grand Rounds, Lucile Packard Children's Hospital, Stanford University, Stanford, CA, (Lecture title: "Gender Variant/Transgender Youth: Endocrine Considerations")	Invited lecture

2011	UCSF Pediatric Noon Cnference Series (Lecture title: "Abnormalities of Puberty")	Invited lecture
2011	Gender Spectrum 5th Annual Family Conference (Lecture title: “The Biology of Gender”), Berkeley, CA	Invited lecture
2011	Gender Spectrum Professional's Workshop, Berkeley, CA (“The Use of Pubertal Blockers in Gender Variant Youth”)	Invited speaker, panel presentation
2011	"Mind-the-GAP" Mental Health Professionals Workshop, Oakland, CA (Lecture title: "The Use of Pubertal Blockers in Gender Variant Youth”)	Invited lecture
2011	8th Annual Great Plains Pediatric Endocrine Symposium (Lecture title: "Gender Variant/Transgender Youth: Endocrine Considerations")	Invited Plenary Lecture
2011	American Psychiatric Association (APA) Institutes on Psychiatric Services Annual Meeting (Presentation title: "The Child and Adolescent Gender Center: A UCSF/ Community Collaborative")	Invited speaker, panel presentation
2011	UCSF School of Medicine, Pediatric Interest Group: “Career Development in Pediatric Endocrinology"	Invited speaker
2012	Warren Alpert Medical School of Brown University Adult and Pediatric Grand Rounds, Providence, RI (Lecture title: "Gender Variant/Transgender Youth: Endocrine Considerations")	Invited lecture
2012	Endocrine Grand Rounds, UCSF School of Medicine, Department of Medicine, Division of Endocrinology, San Francisco, CA (Lecture title: "Gender Non-Conforming/Transgender Youth: Endocrine Considerations")	Invited lecture
2012	Gender Spectrum 6th Annual Family Conference (Lecture title: “The Biology of Gender”), Berkeley, CA	Invited lecture
2012	Gender Spectrum 6th Annual Family Conference (“Safe Sports for Transgender Youth"; "Medical Panel: Concerns for Transgender Youth"), Berkeley, CA	Invited speaker, panel presentations
2012	Gender Spectrum Professional's Workshop, Berkeley, CA (“The Use of Pubertal Blockers in Gender Variant Youth”)	Invited speaker
2012	UCSF School of Medicine, Pediatric Interest Group: “Career Development in Pediatric Endocrinology"	Invited speaker

2012	Pediatric Grand Rounds, Santa Clara Valley Medical Center, San Jose, CA (Lecture title: "Gender Non-Conforming/Transgender Youth: Endocrine Considerations")	Invited lecture
2013	Pediatric Grand Rounds, Children's Hospital of Philadelphia (CHOP), Philadelphia, PA, (Lecture title: "Gender Non-Conforming/Transgender Youth: Endocrine Considerations")	Invited lecture
2013	CHOP-Hospitals of the University of Pennsylvania (HUP) Combined Endocrine Grand Rounds, Philadelphia, PA, (Lecture title: "The Biology of Gender")	Invited lecture
2013	Pediatric Grand Rounds, Marin General Hospital, Greenbrae, CA (Lecture title: "Gender Nonconforming/Transgender Youth: Endocrine Considerations")	Invited lecture
2013	UCSF Trans Health Seminar	Invited lecture
2013	Pediatric Grand Rounds, John Muir Medical Center, Walnut Creek, CA (Lecture title: "Gender Nonconforming/Transgender Youth: Endocrine Considerations")	Invited lecture
2013	Grand Rounds, Children's Hospital & Research Center Oakland, Oakland, CA (Lecture title: "Gender Nonconforming/Transgender Youth: Endocrine Considerations")	Invited lecture
2013	Gender Spectrum 7th Annual Family Conference (Lecture title: “The Biology of Gender”), Berkeley, CA	Invited lecture
2013	Gender Spectrum Professional's Workshop, Berkeley, CA	Invited Lecture, Panel Presentations
2013	PFLAG, San Francisco Chapter	Invited speaker
2013	Expert Panel on Transgender Health for Adolescent Clients, Callen-Lorde Community Health Center, New York, NY	Invited speaker/panelist
2013	43rd Annual Fall Conference, Children's Hospital & Research Center Oakland, Monterey, CA (Lecture title: "Gender nonconforming/Transgender Youth: Endocrine Considerations")	Invited Lecture
2014	Medicine Grand Rounds, Beth Israel Medical Center, New York, NY (Lecture title: "Transgender Youth: Endocrine Considerations")	Invited Lecture
2014	UCSF Trans Health Seminar	Invited lecture

2014	Pediatric Grand Rounds and Visiting Professor, University of Wisconsin, Madison, WI (Lecture title: "Gender Nonconforming/Transgender Youth: Endocrine Considerations")	Invited Lecture and Visiting Professor
2014	Combined Adult/Pediatric Endocrine Grand Rounds, University of Wisconsin, Madison, WI (Lecture title; "The Biology of Gender")	Invited Lecture
2014	Kaiser Permanente CME: Transgender Care for the Pediatric Mental Health Provider (Lecture title: The Biology of Gender")	Invited Lecture/ Panelist
2014	Gender Spectrum 8th Annual Family Conference (Lecture title: “The Biology of Gender”), Moraga, CA	Invited lecture
2014	Gender Spectrum Professional's Workshop, Moraga, CA	Invited Lecture, Panel Presentations
2014	PFLAG Regional Convention, Napa, CA	Invited speaker
2014	47th Annual Clinical Advances in Pediatrics Symposium, Children's Mercy Hospital, Kansas City, MO (Lecture title: "Gender nonconforming/Transgender Youth: Endocrine Considerations")	Invited Keynote Address
2014	Endocrine Grand Rounds and Visiting Professor, University of Cincinnati Hospital Medical Center, Cincinnati, OH (Lecture title: Gender Nonconforming/Transgender Youth: Endocrine Considerations")	Invited Lecture and Visiting Professor

CONTINUING EDUCATION AND PROFESSIONAL DEVELOPMENT ACTIVITIES

2006	The Endocrine Society Annual Meeting
2006	The Lawson Wilkins Pediatric Endocrine Society Annual Meeting
2007	The Endocrine Society Annual Meeting
2007	The Lawson Wilkins Pediatric Endocrine Society Annual Meeting
2008	The Endocrine Society Annual Meeting
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2014	Endocrine Society Annual Meeting
2015	Endocrine Society Annual Meeting
2015	The Pediatric Endocrine Society Annual Meeting

GOVERNMENT AND OTHER PROFESSIONAL SERVICE

1995 - 1995	USDA	Grant Review Panel
2006 - 2012	NIH/NIDDK, TrialNet Eligibility Committee	Member

UNIVERSITY AND PUBLIC SERVICE

SERVICE ACTIVITIES SUMMARY

As detailed above, the highlights of my service activities include the following: a) UCSF Campus-wide: I have served on the Committee for Human Research for 3 years was appointed to the UCSF LGBT Center of Excellence Task Force; b) School of Medicine: I was an inaugural lecturer in the 2nd year LifeCycle course and PISCES Preceptor for the 3rd year Pediatrics curriculum; c) Departmental Service: I have served on a variety of committees, most notably the Pediatric Ambulatory Clinic Operations Committee and the Pediatric Clinical Enterprise Committee. I served as the Pediatric Endocrine Clinic Director, the Pediatric Endocrine Director of the multi-disciplinary Disorders of Sex Development Clinic, and currently serve as Medical Director of the Child and Adolescent Gender Center. I also served as the Program Director for Pediatric Endocrinology Fellowship Training; and d) Public Service: My activities have focused on volunteering for the Visiting Nurses and Hospice program, volunteering for various Diabetes programs (family support groups, Diabetes camp, etc.), speaking at family conferences and professional workshops focused on the care of gender variant/ transgender youth and adolescents, and helping to raise money for financially challenged, promising figure skaters in the Bay Area.

UCSF CAMPUSWIDE

2000 - 2000	Search Committee for Division Chief, Reproductive Endocrinology	Member
2002 - 2003	Committee on Human Research	Member
2004 - 2006	Committee on Human Research	Member
2010 - 2010	Search Committee for Director, Mass Spectrometry Program	Member
2011 - present	UCSF LGBT Center of Excellence Task Force	Member

2012 - 2013	2013 National Trans Health Summit Planning Committee	Member
2014 - present	UCSF LGBT Leadership Collaborative on Education, Research, and Clinical Care	Member

SCHOOL OF MEDICINE

1994 - 2015	Various Ad hoc Promotion Review Committees	Member
1997 - 1999	Diabetes Center Planning Committee	Member
2002 - 2003	Life Cycle course, 2nd year Curriculum	Team Leader, Small Group Designer and Leader
2002 - 2015	Life Cycle course, 2nd year Curriculum	Lecturer (2)
2003 - 2007	Life Cycle course, 2nd year Curriculum	Small Group Designer and Leader
2004 - 2009	Foundations of Patient Care	Preceptor
2006 - 2007	UCSF Intersex Task Force	Member
2007 - 2014	Parnassus Integrated Student Clinical Experiences (PISCES), 3rd year Curriculum	Preceptor in Pediatrics (20 clinics/year)

SCHOOL OF DENTISTRY

2003 - 2015	Craniofacial Anomalies CFA 206	Lecturer

DEPARTMENTAL SERVICE

1986 - 1987	Intern Selection Committee	Member
1992 - 1993	Moffitt Ward Education Committee	Member
1993 - 1994	Endocrinology/Neurology/Neurosurgery/Hematology/Oncology, Panel A, Subspecialty Outpatient Rotation	Director
1993 - 2014	Intern Selection Committee	Member
2000 - 2000	Search Committee, Faculty Member, Division of Pediatric Endocrinology	Member
2006 - 2007	UCSF High School Summer Internship program	Preceptor/ Mentor
2006 - 2015	Pediatric Endocrine Outpatient Services	Director
2008 - 2009	Karlsberger Steering Committee	Member

2008 - 2011	Pediatric Endocrinolgy FellowshipTraining Program	Associate Program Director
2008 - present	Disorders of Sexual Development (DSD) Clinic	Pediatric Director
2009 - 2009	Ward Revision Task Force	Member
2009 - 2012	Outpatient Re-engineering Steering Committee	Member
2009 - 2010	Clinical Excellence Task Force, UCSF Pediatric Residency Program	Member
2010 - present	Child and Adolescent Gender Center	Medical Director and Steering Committee co-Chair
2011 - 2015	EPIC	"Superuser"
2012 - 2015	Pediatric Endocrinolgy FellowshipTraining Program	Program Director
2012 - 2015	Pediatric Ambulatory Clinic Operations Committee	Member
2012 - 2015	Pediatric Clinical Enterprise Committee	Member

COMMUNITY AND PUBLIC SERVICE

1991 - 2000	Visiting Nurses and Hospice of San Francisco	Volunteer, 1 evening/week
1995 - 2013	Diabetes Youth Foundation's Bearskin Meadow Summer Camp	Medical volunteer, 1 week/ year
1995 - 2002	Adult Skating Program Committee, US Figure Skating Association	Member
1996 - 1996	March of Dimes Walk Steering Committee, San Francisco, CA	Member
2000 - 2001	Skating Club of San Francisco	Member, Board of Directors, and Vice-President
2002 - 2012	Numerous Bay Area Diabetes Family Support Groups	Invited speaker
2007 - present	Skate San Francsco (Figure Skating Competition)	Medical volunteer
2008 - 2012	Diabetes Youth Foundation Annual Figure Skating event	Medical volunteer and Skating Instructor

2009 - present	Ice Bridges, a non-profit corporation which assists financially challenged, promising figure skaters in the San Francisco Bay Area	Member, Board of Directors
2010 - present	Bay Area Family Support Groups and Mental Health Professional Workshops for Gender Variant/ Transgender Youth and Adolescents	Invited speaker

CONTRIBUTIONS TO DIVERSITY

CONTRIBUTIONS TO DIVERSITY

I began my work with the care of gender nonconforming/transgender youth in January, 2009, and led efforts to create the multi-disciplinary Child and Adolescent Gender Center (CAGC), which formally opened its doors in May, 2012. I serve as Medical Director of the CAGC, serving >1300 gender nonconforming/ transgender youth, and oversee all clinical and research activities of the CAGC.

TEACHING AND MENTORING

TEACHING SUMMARY

In my current role as Emeritus Professor on Recall, I supervise postdoctoral fellows, residents, and medical students during one clinic/week (5-6 hr/wk). In addition, my current teaching responsibilities include: Lecturer in the Medicine/Pediatrics combined Endocrinology Fellows Course (2 hr); In addition to my UCSF teaching responsibilities, my teaching includes lecturing at a number of symposia on transgender health.

FORMAL TEACHING

	Academic Yr	Course No. & Title	Teaching Contribution	School	Class Size
	1986 - 2017	Adolescent Core Seminar Series 180.01C	Lecturer		
	2002 - 2015	Life Cycle, 2nd yr Med. Sch. Curr	Lecturer		Entire 2nd yr class
	2002 - 2007	Life Cycle, 2nd yr Med. Sch. Curr	Small Group Designer and Leader		25
	2003 - 2015	Craniofacial Anomalies CFA 206	Lecturer		
	2007 - 2014	Parnassus Integrated Student Clinical Experiences (PISCES), 3rd yr Med Sch Curr	Preceptor		1 student/ year

	Academic Yr	Course No. & Title	Teaching Contribution	School	Class Size
	2000 - 2009	Foundations of Patient Care IDS 132A	Preceptor		

INFORMAL TEACHING

1983 - 2015 Clinical: Weekly inpatient Pediatric Endocrine teaching conference: 1.5 hr/week x 48 weeks = 72 hr/year

1994 - present Clinical: Outpatient: Supervising/teaching: One clinic/week (5-6 hr) is a teaching clinic = 5-6 hr/week (including outpatient follow-up teaching) = 275 hr/year

MENTORING SUMMARY

I mentored Dr. Adi during his NIH K-08 Award in studies focused on understanding the molecular mechanisms through which Insulin-like Growth Factors influence the decision of skeletal myoblasts to proliferate or differentiate.
I mentored Dr. Cheung in clinical/translational studies investigating Aquaporin-2 excretion in the recently described Nephrogenic Syndrome of Inappropriate Antidiuresis.

PREDOCTORAL STUDENTS SUPERVISED OR MENTORED

Dates	Name	Program or School	Mentor Type	Role	Current Position
2003 - 2004	Dandan Liu	University of California, Berkeley		Supervised student for her Senior Honors Thesis	MD, Resident, UCSF
2007 - 2011	Linda Zhou, BS	Pre-doctoral student		Preceptor	Attending graduate school
2012 - 2012	Meaghan Pugh, RN, PNP	UCSF Advanced Practice Pediatric Nurse Practitioner Program		Clinical Preceptor	Clinical Practice
2013 - 2015	Tara Gonzalez	UC Berkeley-UCSF Joint Medical Program PRIME-US Program		Research Mentor	MS Class of 2015; MD Class of 2017

Prepared: May 26, 2020

POSTDOCTORAL FELLOWS AND RESIDENTS MENTORED

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
1983 - 1984	Elizabeth Schriock, M.D	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Private Practice, San Francisco, CA
1983 - 1984	David Harris, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Assoc Clin Prof Pediatrics, U. of Utah, Salt Lake City
1983 - 1984	Leona Cuttler, M.D	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Professor and Chief of Pediatric Endocrinology, Case Western Reserve U., Cleveland, OH
1983 - 1984	Berthold Hauffa, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Professor of Pediatrics, Universitat Essen, Germany
1983 - 1984	Robert Lustig, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Professor of Clinical Pediatrics, UCSF
1983 - 1984	Klaus Rodens, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Assoc Prof Pediatrics, U. of Ulm, Germany
1983 - 1984	J. Anthony Hulse, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Consultant Endocrinologist, St. Thomas Hospital, London

Prepared: May 26, 2020

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
1983 - 1985	Catherine Egli, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Chief of Pediatric Endocrinology, San Francisco Kaiser Hospital
1984 - 1985	David Stephure, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Assoc Prof Pediatrics and Chief of Pediatric Endocrinology, U. of Calgary, Canada
1984 - 1987	Bernard Silverman, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Former Assoc Prof and Chief of Ped Endo, Northwestern U., now Medical Director, Alkemes Inc.,
1984 - 1987	Jorge Daaboul, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Associate Professor of Pediatrics, U. of Florida, Gainesville, FL
1985 - 1987	Sharyn Solish, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Private Practice
1985 - 1988	Kenneth Attie, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Former Medical Director, Insmed Inc., Glen Allen, VA

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Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
1986 - 1988	Norbert Albers, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Assoc Prof, Children's Hospital, U. of Bonn, Germany
1986 - 1989	Carol Hart, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Asst Clin Prof Pediatrics, UC, San Diego, CA
1987 - 1989	Nelson Ramirez, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Deceased during fellowship
1987 - 1989	Stephen Gitelman, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Professor of Clinical Pediatrics, UCSF
1988 - 1988	Gregory Glasscock, Ph.D., M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Neonatologist
1988 - 1989	Carol Ishimatsu, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Private Practice, Downey, CA
1988 - 1989	Wen-Yu Tsai, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Assoc Prof of Pediatrics, Director, Pediatric Endocrinology, National Taiwan U.

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Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
1988 - 1988	Sushma Kaul, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Asst Clin Prof Pediatrics, Hackensack Medical Center, New Jersey
1989 - 1991	Klaus Hartmann, M.D.	Post-Doc Research Fellow		Laboratory Research Preceptor	Asst Prof Pediatrics, U. of Frankfurt, Germany
1989 - 1992	Juan Sanchez, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Assoc Prof Pediatrics, Indiana U. Medical Center, Indianapolis
1990 - 1992	Henry Rodriguez, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Associate Professor
1990 - 1993	David Paul, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Chief of Pediatric Endocrinology, David Grant Medical Center, Travis AFB, Sacramento, CA; Asst Clin Prof Pediatrics, UC, Davis
1990 - 1993	Lawrence Silverman, M.D.	Clinical and Research Fellow		Clinical and Laboratory Preceptor	Asst Prof Pediatrics, RWJ-UMDNJ, Chief of Ped Endo, Morristown Mem. Hosp.

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Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
1991 - 1994	Floyd Barry, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Training Chief for Pediatrics, McLennan Family Practice Residency Program, Waco, TX
1991 - 1994	Pat Mahachoklertwattana, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Assoc Prof Pediatrics; Chief of Pediatric Endocrinology, Mahidol U., Bangkok, Thailand
1993 - 1996	Debra Devoe, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Asst Clin Prof Pediatrics, U. Southern California and Los Angeles Children's Hospital, CA
1993 - 1996	David Geller, M.D., Ph.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Asst Prof Pediatrics, UCLA Cedars-Sinai Medical Center, Los Angeles, CA
1994 - 1996	Sudha Mootha, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Asst Prof Clin Pediatrics, U. Texas Southwestern Medical Center, Dallas
1994 - 1997	Saleh Adi, M.D.	Clinical and Research Fellow		Clinical and Laboratory Preceptor	H. S. Professor of Pediatrics, UCSF

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Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
1996 - 1999	Valérie Schwitzgebel, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Professor of Pediatrics, U of Geneva, Switzerland
1996 - 1998	Bassam Bin-Abbas, M.D.	Clinical and Research Fellow		Clinical and Laboratory Preceptor	Asst Prof Pediatrics, King Faisal U, Riyadh, Saudi Arabia
1998 - 1999	Peter Contini, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Private Practice, Moraga, CA
1998 - 2001	Louise Greenspan, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Pediatric Endocrinology, San Francisco Kaiser Hospital; Asst Clin Prof Pediatrics, UCSF
1998 - 2001	Jane Lee, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Clinical Research Scientist, Genentech Inc., South San Francisco, CA
1999 - 2002	Susan Conrad, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Formerly Attending Endocrinologist, Oakland Children's Hospital, Oakland, CA; Now in Private Practice

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Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2000 - 2002	Chaluntorn Preeyasombat, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Asst Prof Pediatrics, Ramathibadi Hospital, Mahidol U., Bangkok Thailand
2001 - 2003	Nicola Tiffin, Ph.D.	Post-Doc Research Fellow		Laboratory Research Preceptor	Research Scientist, University of Western Cape, South Africa
2001 - 2004	Heidi Gassner, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Chief of Pediatric Endocrinology, Sacramento Kaiser Hospital
2002 - 2005	Qing Dong, M.D., Ph.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Chief of Pediatric Endocrinology, Chinese Hospital, San Francisco; Clinical Assistant Professor of Pediatrics, UCSF
2003 - 2007	Gary Meyer, Ph.D.	Post-Doc Research Fellow		Laboratory Research Preceptor	Private Industry
2003 - 2006	Eric Huang, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Attending Physician, Pediatric Endocrinology, Morristown Hospital, New Jersey

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Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2004 - 2006	Brian J. Feldman, M.D.,Ph.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Assist. Prof of Pediatrics, Stanford U
2004 - 2006	Clement Cheung, M.D., Ph.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Assistant Adjunct Professor of Pediatrics, UCSF
2004 - 2007	Maureen A. Su, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Assistant Professor, Dept. of Pediatrics, U. of North Carolina
2005 - 2007	Andrew Bremer, M.D., Ph.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Assistant Professor of Pediatrics, Vanderbilt University, Nashville, TN
2005 - 2008	Sayali Ranadive, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Attending Formerly Endocrinologist, Oakland Children's Hospital, Oakland, CA; Now in Private Practice
2005 - 2007	Roger Long, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Asst Clinical Professor, UC Davis Medical Cntr

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Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2006 - 2009	Alison Reed, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Attending Pediatric Endocrinologist, California Pacific Medical Center, San Francisco, CA
2007 - 2010	William Charlton, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Attending Physician, Joe DiMaggio Children's Hospital, Broward County, FL
2007 - 2010	Ivy Aslan, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Attending Endocrinologist, Oakland Children's Hospital, Oakland, CA
2008 - 2009	Jennifer Cordier, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Private Practice
2008 - 2010	Taninee Sahakitrungruang, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Assistant Prof of Pediatrics, Chuylalongkorn U, Bangkok, Thailand
2009 - 2011	Jenise Wong, M.D., Ph.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Instructor, UCSF

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Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2009 - 2012	Thu Ho, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Private Practice
2009 - 2012	Anjali Jain, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Private Practice
2010 - 2013	Andrea Gerard Gonzalez, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Assistant Professor of Pediatrics, Barbara Davis Diabetes Center, Denver, CO
2010 - 2013	Lisa Taylor, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Private Practice
2010 - 2016	Stanley Vance, Jr., MD	Resident in Pediatrics; then Clinical Fellow, Adolescent Medicine		Research Mentor	Assistant Professor, UCSF
2011 - 2014	Amy Mugg, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	In Training
2011 - 2014	Sara Moassesfar, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	In Training

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Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2012 - 2015	Priya Prahalad, M.D., Ph.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Assistant Professor, Stanford University
2012 - 2015	Joshua Tarkoff, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Clinical practice
2012 - 2015	Paula Jossan, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Clinical practice
2013 - 2014	Vanita Jindal, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Clinical practice
2013 - 2016	Nicholas Heiniger, M.D.	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Clinical practice
2013 - 2016	Stanley Vance, Jr., M.D.	Clinical Fellow, Adolescent Medicine		Research Mentor	Assistant Professor, UCSF
2014 - present	Eric Bomberg, MD	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	In Training
2015 - 2019	Janet Lee, MD, MPH	Clinical Fellow, Pediatric Endocrinology		Clinical and Research Mentor	Instructor, UCSF

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Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2015 - 2017	Liat Perl, MD	Clinical Fellow, Pediatric Endocrinology		Clinical and Research Mentor	In Training, Israel
2016 - 2019	Ayca Cakmak, MD	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	In Training
2016 - 2019	Alyssa Huang, MD	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	Assistant Professor, University of Washington
2017 - present	Armaiti Mody, MD	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	In Training
2017 - present	Jenny Zabinsky, MD	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	In Training
2018 - present	Fatema Abdul Hussein, MD	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	In Training
2018 - present	Hannah Chesser, MD	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	In Training
2018 - present	Caroline Schulmeister, MD	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor and Research Mentor	In Training

Dates	Name	Fellow	Mentor Role	Faculty Role	Current Position
2019 - present	Isabella Niu, MD	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor	In Training
2019 - present	Abby Cobb-Walch, MD	Clinical Fellow, Pediatric Endocrinology		Clinical Preceptor and Research Mentor	In Training

FACULTY MENTORING

Dates	Name	Position while Mentored	Mentor Type	Mentoring Role	Current Position
2010 - 2011	Clement Cheung, M.D., Ph.D.	Assistant Professor		Preceptor/ mentor for Aquaporin-2 research project and manuscript preparation	Assistant Adjunct Professor of Pediatrics, UCSF
2016 - 2017	Ensile Lee, MD	Assistant Professor, Korea		Preceptor/mentor in Child and Adolescent Gender Center	Assistant Professor, Korea
2016 - present	Stanley Vance, Jr., MD	Assistant Professor		Research Mentor	Assistant Professor, UCSF
2019 - present	Janet Lee, MD	Instructor		Research Mentor	Instructor, UCSF

RESEARCH AND CREATIVE ACTIVITIES

RESEARCH AND CREATIVE ACTIVITIES SUMMARY

My current research is focused on optimizing multidisciplinary care for transgender youth. I am currently serving as Principal Investigator (Multiple PI format) of an NIH/NICHD R01 focused on Early Medical Treatment of Transgender Youth, and as co-Investigator on two additional NIH R01's focused on transgender youth.

My prior research has included both basic science and clinical investigation. My laboratory work has focused on two aspects of hormone receptor signaling. First, we extended our work in Insulin-like Growth Factor (IGF)-I receptor signaling to studies in human neuroblastoma (NBL). Specifically, we have explored the role of IGF signaling in the growth, motility, and invasiveness of human NBL cells. In collaborative studies with UCSF investigators from Pediatric Oncology, Neurology, Internal Medicine, and Radiation Oncology, we have observed

that small molecule inhibitors of the IGF-I receptor block growth, survival, and motility of NBL cells, and inhibit NBL growth in vivo in a xenograft model in nude mice. A manuscript summarizing portions of this work has been published in the Journal of Cellular Biochemistry. This work has been supported by a grant from the Thrasher Research Fund with matching funds from the UCSF Cancer Center. I also received, as Principal Investigator, a Basic Research grant for our work regarding IGF-I signaling in neuroblastoma from the John A. Kerner, M.D. Research Foundation. Also as Principal Investigator, I have received a Basic Research grant from ImClone Systems, Inc., to examine the therapeutic potential of a humanized monoclonal anti-IGF-I receptor antibody and radiation in neuroblastoma.

In addition, we have recently identified and characterized novel activating mutations in the vasopressin V2 receptor (V2R) that cause a Syndrome of Inappropriate Antidiuretic Hormone (SIADH)-like phenotype, yet without detectable ADH. We have named this syndrome "Nephrogenic Syndrome of Inappropriate Antidiuresis" (NSIAD), and have reported our findings in New England Journal of Medicine 352:34-40, 2005 (co-first-author). I have been engaged in collaborative studies to extend our characterization of NSIAD, with three specific aims: 1) explore further the molecular mechanisms responsible for the constitutive activity of the vasopressin V2R mutants, 2) further characterize the clinical phenotype of NSIAD patients and heterozygous carriers, and 3) explore the potential role of selective vasopressin V2R "inverse agonists" as a targeted treatment for this condition. This work has been carried out in collaboration with investigators from the Departments of Psychiatry and Cellular and Molecular Pharmacology at UCSF, the Department of Biochemistry, Division of Cell Signaling and Molecular Pharmacology, at the University of Montreal, and the Department of Medicine, University of Colorado School of Medicine. A manuscript summarizing this work with respect to V2R trafficking waspublished in Molecular Pharmacology, 2010, and a manuscript summarizing this work with respect to urinary aquaporin-2 excretion in this syndrome has just been submitted for publication.

With respect to clinical investigation, I have been an investigator in studies related to Type 1 Diabetes, studies related to growth disorders, and studies related to disorders of sex development (DSD). With respect to Type 1 Diabetes, I served as co-Investigator for TrialNet, a multi-center NIH-sponsored study focused on developing therapies to prevent Type 1 Diabetes Mellitus in high risk individuals. I have been co-Investigator on the TrialNet Natural History of Type 1 Diabetes study and on five intervention studies for patients with newly diagnosed Type 1 Diabetes : 1) TrialNet Mycophenolate Mofetil-Dacluzimab (MMF-DZB), 2) TrialNet Rituximab, 3) TrialNet CTLA-4 Ig, 4) Immune Tolerance Network Phase II trial of hOKT3 gamma1 (Ala-Ala), and 5) Immune Tolerance Network trial of thymoglobulin. In addition, I have been Principal Investigator at UCSF for the TrialNet Nutritional Intervention to Prevent (NIP) Type 1 Diabetes study examining the therapeutic potential of docosahexaenoic acid, an omega-3 fatty acid, in individuals at high-risk for developing this disorder, and am co-Investigator in the TrialNet Oral Insulin Prevention Trial.

With respect to growth disorders, I have served as the UCSF-site Principal Investigator for a multi-center trial investigating the therapeutic potential of recombinant human IGF-I for prepubertal children with Growth Hormone (GH) resistance.

With respect to studies of DSD, I have served as co-Principal Investigator for a NIH/ NICHD R01 multi-center study entitled "Disorders of Sex Development: Platform for Basic and Translational Research". The focus of this project has been to develop a multi-site infrastructure to support hypothesis-based research on the mechanisms of sexual development and evidence-based care for patients with DSD and their families.

Effective April 1, 2011, I completed my basic laboratory work, shifting my research focus exclusively to clinical research. As noted above, my current research is focused on optimizing medical care of transgender youth, with particular emphasis on mental health and skeletal health outcomes of current treatment models.

RESEARCH AWARDS - CURRENT

1. 1R01HD082554-01A1	Principal Investigator (Multiple PI format)	20 % effort	Rosenthal (PI)
NIH/ NICHD		08/01/2015	06/30/2020
The Impact of Early Medical Treatment in Transgender Youth		$ 952,542 direct/yr 1	$ 5,732,531 total
This is a multicenter study which will be the first in the U.S. to evaluate the long-term outcomes of medical treatment for transgender youth. This study will provide essential, evidence-based information on the physiological and psychosocial impact, as well as safety, of hormone blockers and cross-sex hormones use in this population.			
2.	Principal Investigator	5 % effort	Rosenthal (PI)
San Francisco Department of Public Health		07/01/2017	06/30/2022
UCSF Child and Adolescent Gender Center Transgender Youth Support Program		$ 325,000 direct/yr 1	$ 1,625,000 total
To develop outreach and provide multidisciplinary services for transgender youth in the city of San Francisco			
Overall supervisor and consultant			
3. R01MH115349	Co-Investigator	10 % effort	Hong (PI)
NIH/ NIMH		07/01/2018	06/30/2023
Sex Hormone effect on Neurodevelopment: Controlled puberty in transgender adolescents			
This will be the first study of its kind to directly investigate longitudinal brain anatomy in young adolescents with gender dysphoria (GD). The study will utilize an innovative, cross-disciplinary approach that takes advantage of sophisticated imaging modalities to elucidate the interaction between sex hormone therapies and brain anatomy and connectivity in youth. Results from this interdisciplinary proposal will directly impact clinical care for individuals with GD and provide a much-needed empirical foundation for understanding the longitudinal impact of treatments that are already being used in clinical settings.			
Co-Investigator			
4. R01HD097122	Co-Investigator	3 % effort	Ehrensaft (PI)
NIH/ NICHD		03/21/2019	02/29/2024
Gender Nonconformity in Prepubescent Children: A Longitudinal Study			

This project is a prospective longitudinal observational study of pre-pubertal children who are gender-nonconforming and their care. It is a four-site study involving U.S.-based university affiliated pediatric gender clinics. With a targeted N of 320 subjects, the objective of the proposed research is to provide evidence-based data to inform clinical care for prepubescent transgender and gender-nonconforming children (TGNC).

Co-Investigator

RESEARCH AWARDS - PAST

1. Site Principal investigator

NIH: Clinical Associate Physician, General Clinical Research Center — 1984 — 1987

Growth Hormone Releasing Hormone in Hypopituitarism

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2. Principal investigator

Academic Senate Committee on Research, University of California San Francisco — 1987 — 1988

Insulin-like Growth Factors and Childhood Growth Disorders

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3. Principal Investigator

Grant Award, School of Medicine, Research Evaluation and Allocation Committee, University of California San Francisco — 1987 — 1988

Insulin-like Growth Factors and Childhood Growth Disorders

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4. Principal Investigator

NIH/NICHD: Clinical Investigator Award — 1988 — 1991

Insulin-like Growth Factors and Childhood Growth Disorders

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5. Principal Investigator

March of Dimes: Basil O'Connor Starter Scholar Research Award — 1989 — 1992

Insulin-like Growth Factors and Childhood Growth Disorders

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6. Principal Investigator

Academic Senate Committee on Research, University of California San Francisco — 1991 — 1992

Insulin-like Growth Factors and Skeletal Muscle Differentiation

7.		Principal Investigator		
	March of Dimes: Basic Research Grant		1992	1994
	Insulin-like Growth Factors and Skeletal Muscle Differentiation			
8.		Principal Investigator		
	NIH/NIDDK: FIRST Award		1992	1997
	Insulin-like Growth Factors and Skeletal Muscle Differentiation			$ 350,000 total
9.		Principal Investigator		
	March of Dimes: Basic Research Grant		1995	1997
	Insulin-like Growth Factors and Skeletal Muscle Differentiation			$ 101,150 total
10.		Principal Investigator		
	March of Dimes: Basic Research Grant		1997	1999
	Insulin-like Growth Factors and Skeletal Muscle Differentiation			$ 106,396 total
11.	R01 DK44181	Principal investigator		
	NIH/NIDDK		1998	2003
	IGFs and Skeletal Muscle Differentiation			$ 659,648 total
12.	HOE 9011/4030	Co-Principal Investigator		
	Aventis		2003	2004
	Morning Lantus vs. Intermediate-Acting Insulin in Adolescents with Type1 DM			$ 58,316 total
13.		Principal Investigator		
	Pfizer: Translational Basic Research Award		2003	2004

IGFs and Skeletal Muscle: Implications for Myotherapy $ 15,000 total

14. Co-Principal Investigator
Thrasher Research Fund 2005 2009
Targeted agents that synergize with radiation in high risk neuroblastoma $ 300,000 total

15. Principal Investigator
Tercica, Inc. 2005 2009
Recombinant Human Insulin-Like Growth Factor-I (rhIGF-I) Treatment of Short Stature Associated with Primary IGF-I Deficiency: A Multicenter, Open-Label, Randomized Concentration Controlled Trial $ 57,000 total

16. Principal Investigator
John A. Kerner, M.D. Foundation: Basic Research Award 2005 2009
Small Molecule Inhibitors of the IGF-I Receptor as a Potential Treatment for Neuroblastoma $ 41,500 total

17. 556830-26226 co-PI
NIH/NIAID 2005 2013
Thymoglobulin for treatment of new onset Type 1 Diabetes

18. Basic Research Award Principal Investigator
ImClone Systems, Inc. 2009 2011
The Therapeutic Potential of A12 Anti-IGF-IR Antibody and Radiation in Neuroblastoma $ 84,000 direct/yr 1

19. 23988-10 co-PI
NIH/NIDDK 2009 2013
UCSF TrialNet

20.	1R01HD068138-01A1	Site Principal Investigator	5 % effort	Vilain, Sandberg (PI)
	NIH/NICHD		09/26/2111	06/30/2016
	Disorders of Sex Development: Platform for Basic and Translational Research		$ 639,688 direct/yr 1	$ 3,198,340 total

21.		Principal Investigator	0 (See description, below) % effort	Rosenthal (PI)
	NIH/CTSI; Internal Award UCSF		06/01/2018	05/31/2019

Bone Density, Structure, and Estimated Strength in Transgender Youth Receiving Pubertal Suppression in Early Puberty

Minimal data exist on the skeletal effects of puberty suppression in early pubertal transgender youth. This longitudinal cohort study assessed bone mineral density by dual-energy x-ray absorptiometry and bone microarchitecture and strength by high-resolution peripheral quantitative computed tomography, as well as bone turnover markers, body composition, vitamin D status, weight-bearing exercise, and dietary calcium intake. These data will lead to longer-term studies and investigations of interventions to mitigate the expected lag in skeletal development during pubertal suppression. Ultimately, this research should positively contribute to the clinical care of transgender youth. This funding supported the above-noted studies carried out by postdoctoral fellow, Janet Y. Lee, MD, MPH.

Principal Investigator

PEER REVIEWED PUBLICATIONS

1. Rosenthal SM, Reid IA, Kaplan SL, Grumbach MM: Renin substrate depletion in salt-losing congenital virilizing adrenal hyperplasia: low plasma renin activity despite increased renin concentration.. J Pediatr l02:80-82, l983.
2. Rosenthal SM, Grumbach MM, Kaplan SL: Gonadotropin-independent familial sexual precocity with premature Leydig and germinal cell maturation ("familial testotoxicosis"): effects of a potent luteinizing hormone-releasing factor agonist and medroxyprogesterone acetate therapy in four cases. J Clin Endocrinol Metab 57:57l-579, l983.
3. Rosenthal SM, Schriock EA, Kaplan SL, Guillemin R, Grumbach MM: Synthetic human pancreas growth hormone-releasing factor (hpGRF 1-44-NH2) stimulates growth hormone secretion in normal men. J Clin Endocrinol Metab 57:677-679, l983.
4. Schriock EA, Lustig RH, Rosenthal SM, Kaplan SL, Grumbach MM: Effect of growth hormone (GH)-releasing hormone (GRH) on plasma GH in relation to magnitude and duration of GH deficiency in 26 children and adults with isolated GH deficiency or multiple pituitary hormone deficiencies: evidence for hypothalamic GRH deficiency. J Clin Endocrinol Metab 58:l043-l049, l984.

5. Egli CA, Rosenthal SM, Grumbach MM, Montalvo JM, Gondos B: Pituitary gonadotropin-independent male-limited autosomal dominant sexual precocity in nine generations: familial testotoxicosis. J Pediatr 106:33-40, 1985.

6. Gondos B, Egli CA, Rosenthal SM, Grumbach MM: Testicular changes in gonadotropin-independent familial male sexual precocity. Arch Pathol Lab Med 109:990-995, 1985.

7. Rosenthal SM, Hulse JA, Kaplan SL, Grumbach MM: Exogenous growth hormone inhibits growth hormone-releasing factor-induced growth hormone secretion in normal men. J Clin Invest 77:176-180, 1986.

8. Hulse JA, Rosenthal SM, Cuttler L, Kaplan SL, Grumbach MM: The effect of pulsatile administration, continuous infusion, and diurnal variation on the growth hormone (GH) response to GH-releasing hormone in normal men. J Clin Endocrinol Metab 63:872-878, 1986.

9. Rosenthal SM, Kaplan SL, Grumbach MM: Short-term continuous intravenous infusion of growth hormone (GH) inhibits GH-releasing hormone-induced GH secretion: a time-dependent effect. J Clin Endocrinol Metab 68:1101-1105, 1989.

10. Hartmann K, Papa V, Brown EJ, Rosenthal SM, Goldfine ID: A rapid and simple one-step method for isolation of Poly (A)+ RNA from cells in monolayer. Endocrinology 127:2038-2040, 1990.

11. Rabinovici J, Dandekar P, Angle M, Rosenthal SM, Martin M: Insulin-like growth factor I (IGF-I) levels in follicular fluid from human preovulatory follicles: correlation with serum IGF-I levels. Fertil Steril 54:428-433, 1990.

12. Rosenthal SM, Brunetti A, Brown EJ, Mamula PW, Goldfine ID: Regulation of insulin-like growth factor I (IGF-I) receptor expression during muscle cell differentiation: potential autocrine role of IGF-II. J Clin Invest 87:1212-1219, 1991.

13. Rosenthal SM, Silverman BL, Wehrenberg WB: Exogenous growth hormone (GH) inhibits bovine but not murine pituitary GH secretion in vitro: evidence for a direct effect of GH on the pituitary. Neuroendocrinology 53:597-600, 1991.

14. Rosenthal SM, Brown EJ, Brunetti A, Goldfine ID: Fibroblast growth factor inhibits insulin-like growth factor (IGF)-II gene expression and increases IGF-I receptor expression in BC3H-I myoblasts. Mol Endocrinol 5:678-684, 1991.

15. Papa V, Hartmann K, Rosenthal SM, Maddux BA, Siiteri PK, Goldfine ID: Progestins induce downregulation of insulin-like growth factor I receptors in human breast cancer cells: potential autocrine role of IGF-II. Mol Endocrinol 5:709-717, 1991.

16. Hartmann KKP, Baier TG, Papa V, Kronenwett M, Brown EJ, Goldfine ID, Rosenthal SM: A monoclonal anntibody to the T-cell receptor increases IGF-I receptor content in normal T-lymphocytes: Comparison with phytohemagglutinin. J Cell Biochem 48:81-85, 1992.

17. Brown EJ, Hsiao D, Rosenthal SM: Induction and peak gene expression of insulin-like growth factor II follow that of myogenin during differentiation of BC3H-1 muscle cells. Biochem Biophys Res Commun 183:1084-1089, 1992.

18. Goodman PA, Sbraccia P, Brunetti A, Wong KY, Carter JD, Rosenthal SM, Goldfine ID: Growth factor receptor regulation in the Minn-1 Leprechaun: defects in both insulin receptor and epidermal growth factor receptor gene expression. Metabolism 41:504-509, 1992.

19. Goldfine ID, Papa V, Vigneri R, Siiteri P, Rosenthal SM: Progestin regulation of insulin and insulin-like growth factor I receptors in cultured human breast cancer cells. Breast Cancer Res Treat 22:69-79, 1992.

20. Uyeki T, Barry FL, Rosenthal SM, Mathias RS: Successful treatment with hydrochlorothiazide and amiloride in an infant with congenital nephrogenic diabetes insipidus. Pediatric Nephrology 7:554-556, 1993.

21. Rosenthal SM, Brown EJ: Mechanisms of insulin-like growth factor (IGF)-II-induced IGF-I receptor down-regulation in BC3H-1 muscle cells. J Endocrinology 141:69-74, 1994.

22. Rosenthal SM, Hsiao D, Silverman LA: An insulin-like growth factor (IGF)-II analog with highly selective affinity for IGF-II receptors stimulates differentiation but not IGF-I receptor down-regulation in muscle cells. Endocrinology 135:38-44, 1994.

23. Silverman LA, Cheng Z-Q, Hsiao D, Rosenthal SM: Skeletal muscle cell-derived insulin-like growth factor (IGF) binding proteins inhibit IGF-I-induced myogenesis in rat L6E9 cells. Endocrinology 136:720-726, 1995.

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SIGNIFICANT PUBLICATIONS

1. Feldman BJ*, Rosenthal SM*, Vargas GA, Fenwick RG, Huang EA, Matsuda-Abedini M, Lustig RH, Mathias RS, Portale AA, Miller WL, Gitelman SE: Nephrogenic syndrome of inappropriate antidiuresis. N Engl J Med 352:34-40, 2005.
   * Denotes co-first author

   I was co-first author on this publication. I recognized that a child, suspected to have a primary renal salt-losing condition, instead had a problem of disordered water balance, and oversaw an evaluation (clinical and laboratory) which ultimately led to the discovery of a novel activating mutation of the V2 vasopressin receptor (V2R) in one of the first of two patients with this previously undescribed disorder. In addition, I co-supervised the data analysis and co-wrote the manuscript.

2. Huang EA, Feldman BJ, Schwartz ID, Geller DH, Rosenthal SM, Gitelman SE: Oral urea for the reatment of chronic syndromes of inappropriate antidiuresis in children. J Pediatr 148:128-131, 2006.

   I co-supervised the study design and data analysis and co-wrote the manuscript.

3. Meyer GE, Chesler L, Liu D, Youngren J, Goldfine ID, Weiss WA, Matthay KK, Rosenthal SM: M Nordihydroguaiaretic acid inhibits insulin-like growth factor signaling, growth and survival in human neuroblastoma cells. J Cell Biochem 102:1529-1541, 2007.

   I co-designed the studies, supervised the experiments in my laboratory, oversaw the data analysis, and co-wrote the manuscript.

4. Rosenthal S, Cohen P, Clayton P, Backeljauw P, Bang P, Ten S: Treatment perspectives in Idiopathic Short Stature with a focus on IGF-I deficiency (Guest Editor: Rosenfeld RG). Pediatr Endocrinol Rev Volume 4, Suppl 2: 251-271, 2007

   I was the principal author in the data analysis and in the writing of the manuscript.

5. Ranadive SA, Ersoy E, Favre H, Cheung CC, Rosenthal SM, Miller WL, Vaisse C: Identification, characterization and rescue of a novel vasopressin-2 receptor mutation causing nephrogenic diabetes insipidus. Clin Endocrinol epub ahead of print: 2008, Dec. 18.

   I contributed to experimental study design and co-wrote the manuscript.

6. Rochdi MD, Vargas GA, Carpentier E, Oligny-Longpre G, Chen S, Kavoor, A, Gitelman SE, Rosenthal SM, von Zastrow M, Bouvier M: Functional characterization of vasopressin type 2 receptor substitutions (R137H/C/L) leading to nephrogenic diabetes insipidus and nephrogenic syndrome of inappropriate antidiuresis: Implications for treatments. Mol Pharmacol 77:836-845, 2010.

   I proposed the collaboration and contributed to the experimental design and the writing of the manuscript.

7. Cheung CC, Cadnaphaporhornchai MA, Ranadive SA, Gitelman SE, Rosenthal SM. Persistent elevation of urine aquaporin-2 during water loading in a child with Nephrogenic Syndrome of Inappropriate Antidiuresis (NSIAD) caused by a R137L mutation in the V2 vasopressin receptor. /> Int J Pediatr Endocrinol 3:1-6, 2012

   I proposed the study, co-designed the experiments, oversaw the data analysis, and co-wrote the manuscript.

CONFERENCE ABSTRACTS

1. Note: The following are abstracts from the year 2000 onward:

   Wu,NY, Adi S**,** Rosenthal SM: The proliferative and differentiation responses to IGF-I in skeletal myoblasts are influenced by cell density. The Endocrine Society, 2000.

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DOC. 8-4

EXHIBIT 4

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D.; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity as Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON, in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official capacity as District Attorney for Jefferson County.

Defendants.

Civil Action No.

_____

DECLARATION OF REV. PAUL A. EKNES-TUCKER IN SUPPORT OF PLAINTIFFS' MOTION FOR TEMPORARY RESTRAINING ORDER & PRELIMINARY INJUNCTION

I, Paul A. Eknes-Tucker, declare as follows:

1. I am the Senior Pastor at Pilgrim Church in Birmingham, Alabama. I have been a pastor for forty-five years and worked in congregations across the United States.

2. Seven years ago, I was honored to be called to serve the congregation at Pilgrim Church. This calling also allowed me to return to Alabama, the state where I was born and raised.

3. Pilgrim Church was established in Birmingham in 1903 and is part of the United Church of Christ. We hold services every Sunday and open our church during the week for events and community gatherings.

4. A core tenet of this congregation is to love and support all people to be their true selves. This is a belief that I talk about while performing my duties as a Senior Pastor. In fact, my sermon on Easter Sunday this year touched on supporting and caring for the transgender young people in our communities.

5. In my role as Senior Pastor, I have also provided pastoral counseling to parents of transgender children who are church congregants as well as to members of the Birmingham community. In those counseling discussions, parents are often uncertain about what guidance their religious faith can provide as they figure out how to support their child and how their faith can sustain them through that process.

We often talk about their children being made in the image of God and about the role of parents in helping and supporting their children.

6. While providing pastoral counseling, parents of transgender children will often share their worries and fears as well as hopes and aspirations for their transgender child's future. Some of the questions they have relate to the application of our faith's teachings to and the spiritual effects of medical treatments for gender dysphoria. My goal in those conversations is to answer their questions and provide information that the parents would find useful in guiding their decisions about their child's medical care. My religious faith compels me to support parents to love and affirm their transgender children. This includes counseling parents to get help from medical and mental health professionals, when needed, to assist and care for their children and to embrace who they are.

7. I have been fortunate to continue working with the families of transgender children for whom I have provided pastoral counseling. Watching parents support their child, I have seen improvements in the mental health and wellbeing of their children, but also as a family unit; their commitment to one another and their faith only grew stronger.

8. Given my understanding of Alabama's Vulnerable Child Compassion and Protection Act (SB 184), I am concerned that I could face criminal penalties or

fines for my work as a pastoral counselor, which could "cause" a transgender minor to begin receiving medical treatment for their gender dysphoria.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 19 th day of April, 2022.

Rev. Paul A. Eknes-Tucker

DOC. 8-5

EXHIBIT 5

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D.; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity as Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON, in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official capacity as District Attorney for Jefferson County.

Defendants.

Civil Action No.
_____

DECLARATION OF BRIANNA BOE, IN SUPPORT OF PLAINTIFFS' MOTION FOR TEMPORARY RESTRAINING ORDER & PRELIMINARY INJUNCTION

I, Brianna Boe,[1] declare as follows:

1. I am plaintiff to this action and the mother of Michael Boe, a twelve-year-old transgender boy and another plaintiff in this action.

2. I am a citizen of Alabama and reside with Michael in Montgomery County, Alabama.

3. As a young child, Michael was very care-free and outgoing. He was just a happy kid. Then, when Michael was about nine years old, I noticed a significant change in his behavior. He became depressed, withdrew from his friends, and became more anxious and impatient. He also started acting out in school and struggled academically. Some mornings he would beg not to go to school. Although I still took him, I could see that he was both sad and afraid.

4. I talked with him to try to figure out what was going on. He told me that he was starting to feel different and like he didn't belong, and that he was not like other girls. Michael worried that other kids were judging him, and he told me that he was getting bullied a lot at school.

5. Worried that his stress and anxiety was interfering with this ability to learn, I placed him in a new school the following year and started taking him to see

[1] Because of concerns about criminal liability and my child's privacy and safety, I am seeking to proceed in this case under a pseudonym. *See Motion to Proceed Pseudonymously*, filed concurrently herewith. In addition, contemporaneous with signing this declaration, I have signed with my legal name a separate copy of this declaration. My attorneys have a copy of that separate declaration.

a therapist, who helped Michael begin untangling what was causing his depression. Seeing this therapist helped Michael, but he had still not returned to his old self. Over the following year, he regularly talked to me about his growing awareness of his male gender identity. I could see that this was something that occupied a lot of his mental energy and that navigating the mismatch between his inner sense of who he is and the way others saw him was very stressful for him.

6. At the same time, Michael started going through puberty. His chest, and eventually his period, caused him a lot of anxiety and further fueled his depression. Michael would dread getting his period every month—and still does. He finds it very difficult to go to school—let alone pay attention—during the first few days of his period every month. For Michael, this discomfort is far beyond any sort of normal adjustment or discomfort that a non-transgender adolescent might experience. He is anguished, and often debilitated, by these physical reminders that his body does not match who he knows himself to be.

7. About a year ago, in June 2021, Michael disclosed to me that he is transgender. I was happy that he felt comfortable sharing this with me, and I let him know that I love and support him in being who he is. I also was scared because I saw what the bullying had done to him before and knew that his peers may not be accepting of him. Setting that fear aside, I looked for resources to learn what I needed to know to best support Michael, including making sure that he was seen by

healthcare providers with experience working with kids like him. I wanted to be sure that Michael was getting the best possible treatment and that I would have experts who could answer my questions and advise me about treatment options.

8. Soon after Michael came out as transgender to me, I told Michael's father, his siblings, and extended family that Michael is transgender. As I expected, his father was initially taken aback, but we talked about it, and he took the time to learn about transgender children and the importance of supporting them. After that, he came around quickly and has been supportive of Michael ever since. Michael's siblings and grandparents have been equally supportive.

9. I also started taking Michael to see a second therapist who specializes in working with adolescents experiencing gender dysphoria. The therapist confirmed that Michael has gender dysphoria and recommended that he be evaluated for medical treatment. At the same time, with the support of his therapist and family, Michael began to socially transition. Coming out as transgender and socially transition had a remarkably positive effect on Michael, but because he has not yet been able to start any medical treatments for his gender dysphoria, the conflict between his male identity and his body causes him a lot of distress.

10. Although he doesn't have a large chest, his breasts cause him significant distress. He wears a binder everyday to flatten his chest as much as possible, which he couples with baggy clothes to further hide the contour of his

chest. If he could, he would wear his binder all the time, but it is not recommended to wear a binder more than 8-10 hours each day. As a compromise, I bought him numerous sports bras with different levels of compression for him to wear when he takes the binder off. He relies on those sports bras almost as much as his binder. Michael cannot sleep without wearing a sports bra.

11. Michael's period also continues to be a source of significant distress for him. We keep track of his cycles in hopes that he will be mentally prepared, but no amount of preparation or notice is enough. Every month his depression and anxiety spikes, like clockwork.

12. Michael is working hard to manage his depression and recently started taking medication to treat his mental health. Still, there are days that those coping mechanisms fail him due to the intense distress caused by his gender dysphoria. He has engaged in self-harm, such as cutting, and has had suicidal ideation, which I have learned is common among transgender adolescents who are unable to receive the medical treatments they need.

13. Unfortunately, his school environment has become unwelcoming. Recently, he was cornered by a group of students who insisted that Michael was not a boy. Although his teacher addressed the situation afterwards, most of his teachers have not been that supportive, regularly referring to him by the wrong name or pronouns.

14. In February 2022, I called the gender clinic at Children's Hospital to make an initial appointment for Michael. The first availability they had was in December 2022. If this law goes into effect, Michael will not even be able to be evaluated for medical treatment for his gender dysphoria.

15. I am worried that if law prevents Michael from receiving medical evaluation and care for his gender dysphoria that the hormones in his body will continue to change his body in ways that are inconsistent with his gender identity and that his mental health will decline rapidly. Knowing that he has an appointment at the gender clinic has given him hope. Taking that way will leave him with therapy and mental health medications, which we have already seen are not able to adequately address his gender dysphoria. The fact that Michael has a history of cutting and prior suicidal ideation makes even more worried for his safety and wellbeing. One of my other children lost a transgender friend to suicide and I cannot let that happen to Michael.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 19th day of April, 2022.

Brianna Boe

Brianna Boe

DOC. 8-6

EXHIBIT 6

IN THE UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D.; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity as Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County;; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County TOM ANDERSON, in his official capacity as

Civil Action No. _____

DECLARATION OF JAMES ZOE IN SUPPORT OF PLAINTIFFS' MOTION FOR TEMPORARY RESTRAINING ORDER AND PRELIMINARY INJUNCTION

District Attorney for Coffee County; and DANNY CARR, in his official capacity as District Attorney for Jefferson County.

Defendants.

I, James Zoe,[1] hereby declares as follows:

1. I am a citizen of Alabama and reside with my wife and our son in Jefferson County, Alabama.

2. My son, Zachary Zoe, is a thirteen-year-old transgender boy and is another plaintiff in this action. He is in the seventh grade, a bright boy with a close group of friends, and is interested in video games and art. He hopes to become a mental health professional one day.

3. I was born and raised in Alabama, attended the University of Alabama at Birmingham, and have been living in Birmingham my entire life. My wife resided in Alabama from 2009 to 2011, and she returned in 2018. We met that year and married in 2020. Alabama is our family's home and we want to stay here.

[1] Because of concerns about criminal liability and my child's privacy and safety, I am seeking to proceed in this case under a pseudonym. *See* Motion to Proceed Pseudonymously, filed contemporaneously herewith. In addition, contemporaneous with signing this declaration, I have signed with my legal name a separate copy of this declaration. My attorneys have a copy of that separate declaration.

4. When my wife and I married, my wife became Zachary's stepmother, and she has been his champion ever since they met. We share custody and co-parent with Zachary's biological mother and stepfather who also live in Alabama. They fully support the decision to fight for Zachary in court.

5. Zachary was born in Alabama and, like me, has lived in this state for his entire life. Zachary resides half-time with me and my wife in Jefferson County, and half-time with his biological mother and stepfather in St. Clair County. Alabama is Zachary's home and he too, plans to continue residing here.

6. Zachary was assigned female at birth. As a younger child, Zachary was shy and reserved. Around the age of 8, Zachary began to dislike wearing dresses and bright clothing, especially if the clothing was pink. Over time, Zachary started to prefer dressing in masculine attire more and more strongly. He became distressed if people identified him as a girl.

7. Around a year later when Zachary was 9 years old, he started female puberty. Zachary was distressed that he was developing breasts and had to confront menstrual cycles. This caused him to become withdrawn. Around the age of 10, Zachary became uncomfortable wearing any kind of clothing that revealed his body. For example, he started to wear boys' athletic shorts and t-shirts instead of girls' bathing suits when going to swim. As his parents, we did not initially understand why he was withdrawn or why he was so uncomfortable with his body.

8. When Zachary was 11 years old, he began referring to himself using "he" and "him" pronouns. In response, some of his friends mirrored his use of male pronouns. Identifying with male pronouns brought Zachary a greater sense of self-awareness, self-acceptance, allowing him to feel more at ease and happy. It was also when Zachary was 11 years old that he formally told me, my wife, his biological mother, and his stepfather that he is a transgender boy. He declared to us that he did not want to be identified as female. He told us that he uses he/him pronouns and wants us to call him by his chosen name. We all love our Zachary and were supportive of him.

9. Zachary's social transition has been very positive for him. He uses a chest binder and appears and dresses like other boys his age. His friends and his teachers refer to him using "he" and "him" pronouns. It is important to his mental health and well-being that others around him see him as the boy he is. After he came out, Zachary has blossomed into a happier and more outgoing child.

10. In October 2021, after completing appropriate mental health evaluations, Zachary began taking puberty-blocking medication, prescribed by his pediatrician with the support of both sets of parents. He just recently had an appointment to start the assessment process for hormone therapy at the Children's Hospital of Alabama at Birmingham.

11. Continued access to puberty-blockers is essential to maintain Zachary's current state of mental health. It is also critical that he continues on a steady path of receiving future treatments that are age-appropriate and medically necessary to address gender dysphoria. This law has caused my family enormous anxiety. If it goes into effect, we will be forced to choose between harming our son by denying him medically necessary care or facing criminal prosecution. I know the rates of suicide that run through the transgender population due to discrimination and harassment, and I am terrified that this law will exacerbate my son's anxiety and push him into self-harm.

12. None of the decisions surrounding Zachary's medical care have been easy. But the one decision that has not been difficult is to listen and talk to Zachary and engage in regular conversations with medical professionals to determine what course of treatment would be appropriately tailored for my son.

13. I am concerned for Zachary's mental health and well-being if his gender-affirming treatments are disrupted, suspended, or discontinued. No parent should have to watch their child experience severe, unnecessary distress, and this law will do just that because its enforcement and implementation will cause Zachary to develop irreversible physical traits that are inconsistent with his male identity. I am concerned that being forced to undergo this harmful experience will have a

lasting negative effect on Zachary's future and irreparably jeopardize his chance to lead a healthy, happy life as an adult.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 19th day of April, 2022 in Jefferson County, Alabama.

James Zoe

DOC. 8-7

EXHIBIT 7

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D.; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity as Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON, in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official capacity as District Attorney for Jefferson County.

Defendants.

Civil Action No.
_____

DECLARATION OF MEGAN POE IN SUPPORT OF PLAINTIFFS' MOTION FOR TEMPORARY RESTRAINING ORDER & PRELIMINARY INJUNCTION

I, Meagan Poe,[1] hereby declare as follows:

1. I am a plaintiff to this action and the mother of Allison Poe, another plaintiff in this action.

2. I was born and raised in Cullman County, Alabama. Other than the years that my ex-husband, Allison's father, was a member of the United States Army and stationed outside Alabama, I have lived in Cullman County along with my extended family.

3. Allison is a fifteen-year-old transgender girl. Allison was identified as male at birth, but, as her father and I have come to understand, she has a female gender identity. I know that if she could force herself to live as a boy, she would, but that is simply not possible for her. It is who she is.

4. Allison started showing an interest in girls' toys around the age of two. We were stationed overseas at the time and most of her friends were girls because most kids her age on the army base were girls. As a result, she would regularly play with her friends' typical "girls' toys" and wear princess dresses, but we would not buy her girls' toys or clothing. She begged us to buy her a Barbie doll and we refused. Without consulting us, however, her grandmother eventually bought her a Barbie

[1] Because of concerns about criminal liability and my child's privacy and safety, I am seeking to proceed in this case under a pseudonym. *See Motion to Proceed Pseudonymously*, filed concurrently herewith. In addition, contemporaneous with signing this declaration, I have signed with my legal name a separate copy of this declaration. My attorneys have a copy of that separate declaration.

doll. Allison carried that Barbie everywhere she went; it was like a teddy bear to her. Although we were not happy that Allison's grandmother bought the Barbie, we figured this was phase that would pass after we left that base. At most, we thought this was a clear sign that Allison would grow up to be gay.

5. We returned to the United States when Allison was approximately four years old. While stationed at the new base, Allison's interest in girls' clothing and toys persisted. Every time we went shopping for clothes, she would cry that I would not buy her clothes from the girls' section. Because Allison's grandmother already bought her a doll, I figured it would be okay to allow her to have some girls' toys. Knowing that her father wouldn't approve, I bought her a few small dolls and other toys that she could play with while her father was at work. Allison's father eventually found the toys and threw them all away, but her older brother then snuck outside and pulled them out of the garbage for Allison.

6. I eventually started working as a babysitter for a local family with kids close to Allison's age. The mother of that family was nurse and after observing Allison over time, she commented to me that Allison might be transgender. Before that day, I had never heard the word transgender. I did a little research into it but did not follow up much further because Allison's father was not accepting of her, and I still strongly believed that Allison would grow up to be gay.

7. After completing his assignment, Allison's father decided to leave the Army and was honorably discharged. We returned to Cullman County, Alabama to be closer to family. Unfortunately, soon after relocating, we legally separated and I was left to raise two kids on my own as a single working parent.

8. While around her cousins, Allison started doing more boys' activities, like playing video games. I thought maybe Allison was just growing up and that her girl phase was coming to an end. But that could not have been further from the truth.

9. Over the next few years, Allison's personality changed significantly. She became very quiet, showed signs of depression, and regularly commented that she wanted to die. She also stopped eating regularly. All of that was very concerning to me, but Allison would not share with me what was causing that change. Then, towards the end of Allison's fourth-grade year, when she was nine years old, I found a drawing she made of herself. On one side of the drawing was a crying boy and on the other was a happy girl. Around that same time, one of my family members pointed out to me that Allison was not really playing video games; she had been spending the majority of the time perfecting her female avatars on each of the games she was "playing."

10. Not sure what to make of all this, and at my wits end about how to help Allison, I took her to see her pediatrician. After evaluating Allison and talking with us about what had been going on, the pediatrician reiterated what I had heard from

that nurse years prior: Allison may be transgender. She then referred Allison to the gender clinic at UAB in Birmingham for specialized care and assessment.

11. While Allison was being evaluated by a team of clinicians at UAB, I finally got a sense of the emotional issues Allison had been trying to deal with on her own. For example, Allison earnestly asked Dr. Abdul-Latif why God hates her. Faith has always been a very important part of my life and that of our family. Hearing her ask that question broke my heart, both because I wanted Allison to have a strong tie to her faith and because I recognized that my actions as her parent likely contributed to her feeling that way.

12. Because Allison had not yet started puberty, there was no medical treatment for Allison's gender dysphoria, but Dr. Abdul-Latif and the other medical and mental health providers at the clinic gave me information about my options and recommendations about how to support Allison and treat her gender dysphoria. The clinic also connected Allison with regular mental health treatment.

13. That was a turning point for me. I had been very nervous about publicly supporting Allison's transition because I was worried about how our family—and the broader community—would respond. But, I quickly pushed those feelings aside, knowing that I had to do what was right for my child based on the advice of experts.

14. After returning from the appointment at UAB, I made an appointment for Allison to fix her hair into more of a girls' style while she grew it out. We also

cleaned out Allison's room of all boys' clothes, toys, bedding, and decorations, and I took Allison shopping to entirely redo her bedroom and wardrobe. Once we finished setting up her new room, I left her in the room so she could change into one of her new outfits. It is not an exaggeration to say that I saw a totally different child come out of that bedroom moments later. Allison was beaming. She was smiling and happy in a way that I had not seen for a long time.

15. The following night I e-mailed my family to update them about Allison's transition. My family took a long time to process that announcement and some family members initially cut ties with us.

16. The remaining few weeks of Allison's fourth-grade year were equally challenging. She experienced bullying from her classmates who were confused or did not understand Allison's transition and why it was so critical to her health and wellbeing. It was a painful time, but even through all those challenges, Allison remained resilient, further confirming that supporting her in this way was the right decision.

17. Over the summer between Allison's fourth and fifth grade, I had multiple meetings with school administrators and Allison's teachers regarding Allison's transition. We worked together to ensure that she received the supports she needed when she returned to school for fifth grade to prevent further bullying and

allow her to focus on learning. Those efforts largely worked; Allison was generally accepted by her peers and had a much better school experience than in prior years.

18. During Allison's fifth-grade year, some of her peers started showing the first signs of puberty. Allison became very scared about what would happen when she began puberty. Around that same time, we had a follow up appointment at the gender clinic at UAB. The purpose of the visit was to assess whether Allison had begun puberty and to gather more information about possible treatments for Allison's gender dysphoria once she begins puberty. I came to the appointment prepared with a list of questions and notebook to take notes. Allison and I asked many questions about puberty-blocking medications. As the providers answered our questions, I could see the relief in Allison's face when she realized that there was a solution to her worries about puberty. Given the distress Allison was already having around puberty, it was important to me that I got all the information I needed to make an informed decision so that I was prepared with my decision when that time came.

19. The providers at the UAB clinic patiently answered each of our questions during that initial follow up visit. We had several more follow up visits at UAB and in each of those visits, we asked any additional questions about puberty-blocking medications that had come to mind in the months between visits. Thus, when the doctors determined that Allison had started puberty at the end of sixth

grade, I had all the information I needed to consent to Allison starting puberty-blocking medication and did so without hesitation.

20. Because of the puberty-blockers, Allison has been able to have a typical childhood. Allison loves art and is creative. She is also an avid gamer, playing both for the entertainment and camaraderie with fellow gamers.

21. Approximately seven months ago, Allison started taking estrogen. As with puberty-blockers, the clinic at UAB answered all our questions and made sure that we understood the risks, benefits, and alternatives of hormone-replacement therapy. Allison self-administers her dose of estrogen and medication to suppress her testosterone.

22. Allison's mental health has improved dramatically since starting estrogen. She used to be very self-conscious, but now she is confident in herself and excited by all the changes in her body. She has grown new friendships and is doing well in school.

23. Without medical treatment all Allison's fears around developing an Adam's apple, facial hair, and other defining features of male puberty would become her reality. Her appearance would not align with who she is and would likely disclose to everyone that she is transgender, causing her extreme anxiety and distress and exposing her to more ridicule and harassment.

24. Seeing Allison's response to the Alabama legislature's consideration of the Act and knowing how afraid she is of male puberty, I am very worried that Allison's mental health would quickly deteriorate if the Act goes into effect. As much as I want to assure Allison that we would find a way to get her the medications she needs to treat her gender dysphoria—medications that are critical to her ability to function—I don't know if it would be possible. We receive our health insurance coverage through Alabama Medicaid. Although I would drive Allison anywhere so that she could get those medications, we cannot afford to pay for them out of pocket and I don't know if Alabama Medicaid would cover out-of-state providers or prescriptions written by those providers.

25. Stopping or delaying Allison's medical treatments for her gender dysphoria will be devastating to her overall health and wellbeing. I worry that Allison will be inconsolable and retreat into herself. Once the medications wear off, I have little doubt that I will have to bring Allison back to UAB and that she will have to be admitted for in-patient psychiatric care to prevent her from harming herself or worse. And I know that will only be the beginning, it is hard to imagine what the long-term effects will be on her day-to-day life, but I am certain that she will no longer be the same happy child that she is today.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 19 th day of April, 2022.

Megan Poe

Megan Poe

DOC. 8-8

EXHIBIT 8

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D.; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity as Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON, in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official capacity as District Attorney for Jefferson County.

Defendants.

Civil Action No.
_____

DECLARATION OF KATHY NOE, IN SUPPORT OF PLAINTIFFS' MOTION FOR TEMPORARY RESTRAINING ORDER & PRELIMINARY INJUNCTION

I, Kathy Noe,[1] hereby declare as follows:

1. My son, Christopher Noe, and I are plaintiffs in this action. We are citizens of Alabama and reside in Lee County, Alabama.

2. Christopher is a seventeen-year-old transgender boy. He is very passionate about music. He loves listening to all genres of music and plays the trumpet.

3. Christopher and I have resided in Lee County since we moved to Alabama just before Christopher's fourth birthday. We moved to Alabama when my now-former husband was stationed at Fort Benning, Georgia. It is common for families stationed at Fort Benning to live in Phenix City, Alabama, like we do. I also am former active-duty military. Christopher's father is still active-duty military and is currently stationed abroad.

4. Although Christopher was born on a military base in Oklahoma, Alabama is the only home he has known. He has gone to school in Alabama since kindergarten and still has friends he has known since kindergarten.

5. Although Christopher was assigned female at birth, I always knew he was not a typical girl. When Christopher was two and three years old, he had long,

[1] Because of concerns about criminal liability and my child's privacy and safety, I am seeking to proceed in this case under a pseudonym. *See Motion to Proceed Pseudonymously*, filed concurrently herewith. In addition, contemporaneous with signing this declaration, I have signed with my legal name a separate copy of this declaration. My attorneys have a copy of that separate declaration.

pretty hair, which I would put bows in and do in other traditionally girl hairstyles. He always hated it and pulled the bows out. When he was four years old, he asked to cut it short, and I agreed. Christopher loved his new, short haircut immediately.

6. When Christopher was in day care before he was old enough for school, he never played dress up with the other girls. He always wanted to wear pants and shorts. When his kindergarten tried to force Christopher to wear a skirt for their graduation ceremony, Christopher refused, and I fought the school and won the right for him to wear pants. The same thing happened in sixth grade, but this time, when the school refused to let him wear pants instead of a dress for the graduation ceremony, Christopher chose not to attend the ceremony rather than wear a dress.

7. As Christopher got older, he kept wanting his hair cut even shorter, to the point where his hair was shorter than his friends who were assigned male at birth. He also gravitated towards blues and darker colors.

8. When Christopher was around thirteen or fourteen and in his first romantic relationship, he realized that he felt more masculine than his boyfriend and identified more as a boy than a girl. That is when he told me he was transgender. Partly because it did not surprise me, I was immediately supportive.

9. After Christopher came out to me, I put him in counseling so he could talk about it with someone who had experience with transgender children and make sure he was doing what he thought was best for him.

10. About a year later, when Christopher was fifteen, he told his father he is transgender. Christopher's father needed some time to accept that Christopher is transgender, which really hurt Christopher. His father's initial hesitance also delayed Christopher starting hormone replacement therapy because it was important to me to have his father's approval first. Christopher's father ultimately came to accept Christopher's gender identity, which was a relief to Christopher and enabled him to start hormone replacement therapy. When Christopher's father came to support him at the Columbus, Georgia pride parade, Christopher was overjoyed.

11. When Christopher first came out as transgender, he continued to use his birth name, which is unisex. It was also at that time that he started using "he/him" pronouns. Recently, he expressed an interest in being referred to as Christopher instead. All his teachers at school began calling him Christopher and using "he/him" pronouns. Christopher also hopes to legally change his name, but it is difficult to do so while his father is stationed abroad.

12. Despite his social transition, when Christopher started going through female puberty it was a very hard time for both of us. He started his period at age nine, which immediately caused him extreme distress and anxiety. Christopher has never accepted the physical changes that came with female puberty and is particularly distressed by his breasts. Despite having naturally small breasts, Christopher wore a binder for nearly three years. He now prefers TransTape, which

he wears almost daily. He prefers the TransTape because it is more comfortable and looks more like skin than a bra. With the TransTape, he feels more like who he really is.

13. Christopher knows he is different because he is transgender, but counseling and seeing his family and his peers accept him has helped. His family—including me, his father, his aunt, and his siblings—and other longtime family friends have strived to support him. It was hard for Christopher when one of his longtime best friends rejected his transition, but he has many other supportive friends, and he strongly stands up to anyone who bullies him or other kids.

14. Christopher's counselor first recommended him for hormone therapy when he was sixteen. I discussed it several times with Christopher and his counselor, and we decided to pursue hormone treatment for him when he was seventeen. After being provided with a letter of recommendation from his counselor, Christopher's pediatrician referred him to an endocrinologist in November 2021. I took Christopher to his initial visit with the endocrinologist in February 2022. The endocrinologist reviewed Christopher's medical history, the recommendation of Christopher's counselor, and Christopher's lab results. He also asked how long Christopher had been seeing a counselor and how often and asked Christopher to see a psychologist as well, which he did, before he started hormone treatment.

15. Christopher received his first testosterone injection in March 2022, and

since then I have given him his injections at home every other week. His current prescription is valid until June, at which time we will have to go back to the endocrinologist for a follow up appointment, more lab testing, and a new prescription.

16. Christopher's care team includes his pediatrician, endocrinologist, mental health counselor, and psychiatrist. I consult with all of them on his care. Because we live in such a small town, so close to the Alabama–Georgia state line, all Christopher's doctors are in Columbus, Georgia. Both his endocrinologist and his psychiatrist have offices in both Georgia and Alabama, but we go to the Columbus, Georgia locations because they are closer. I fill his testosterone prescription at a pharmacy in Alabama.

17. Even though it has only been a short time since starting hormones, Christopher is already significantly and noticeably happier. He is bubbly, more outgoing, and more confident in himself. I have noticed it myself and have spoken about it with Christopher's counselor, who also has noticed these positive changes. Christopher's co-workers at the local pizza place have also noticed that Christopher is more excited to go to work and be around other people. He loves showing off his new facial hair and deeper voice.

18. Although we travel to Georgia for Christopher's care, because we live in Alabama, I am afraid of what would happen to Christopher if there were an

interference or disruption in his counseling or hormone schedule because of this law. I also fear criminal prosecution for helping my son get the care he needs.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 19th day of April, 2022.

Kathy Noe

DOC. 8-9

EXHIBIT 9

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D.; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity as Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON, in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official capacity as District Attorney for Jefferson County.

Defendants.

Civil Action No.
_____

DECLARATION OF JANE MOE, PhD, IN SUPPORT OF PLAINTIFFS' MOTION FOR TEMPORARY RESTRAINING ORDER & PRELIMINARY INJUNCTION

I, Jane Moe,[1] declare as follows:

1. I am a licensed clinical psychologist and have been practicing in Alabama for twenty years. I am licensed to practice by the State of Alabama and I work and reside in Jefferson County, Alabama.

2. I obtained my PhD in clinical child psychology with a specialization in child development from a major university in Alabama. After completing my post-doctoral work and clinical intern hours, I received my license to practice in Alabama.

3. Since I started my practice twenty years ago, I have worked exclusively with patients under the age of 24. Over that time, I have treated patients with a variety of mental health issues ranging from anxiety and depression to attention deficit hyperactivity disorder or "ADHD."

4. I currently work in a hospital setting within the University of Alabama at Birmingham (UAB) system providing direct mental health care to children and adolescents as well as training other medical providers to work with young patients. For the past two years, I have dedicated part of my practice to working with transgender young people. During that time, I have treated approximately forty transgender young people, ranging in age from five to nineteen.

[1] Because of concerns about criminal liability and my privacy and safety, I am seeking to proceed in this case under a pseudonym. See Motion to Proceed Pseudonymously, filed concurrently herewith. In addition, contemporaneous with signing this declaration, I have signed with my legal name a separate copy of this declaration. My attorneys have a copy of that separate declaration.

5. My work with transgender patients is guided by the well-established standard of care developed by the World Professional Association for Transgender Health (WPATH) and a comprehensive informed-consent protocol.

6. When I start seeing a transgender patient who presents for a mental health assessment, I make clear that the assessment is a process that engages both the patient and their parents. The process requires a minimum of three to four visits, which typically take place over the course of two to three months, depending on the needs of the patient and their family. It is not uncommon for the assessment process to require more visits and take place over a longer period of time.

7. The assessment begins with gathering background information on the patient through questionnaires, rating scales, and talking with the patient and their parents. Through those methods I build a profile of the patient: their level of adjustment and overall functioning, available coping mechanisms, and an understanding of their strengths and weaknesses.

8. As the assessment proceeds, I continue to gather information from multiple sources, including the parents, that will help me determine whether the patient meets the diagnostic criteria for gender dysphoria as outlined in the Diagnostic and Statistical Manual of Mental Disorders ("DSM-5").

9. As part of the assessment, consistent with the informed-consent protocol, I review with the patient and the patient's parents the risks, benefits, and

ranges of medical treatment available and appropriate for treating any particular patient's condition. These discussions often happen over more than one session. Based on the needs of the patient and the patient's family, I may have separate meetings with the patient and parent(s), which gives each the opportunity to ask questions or talk about issues they may not initially feel comfortable discussing in front of the other.

10. I also encourage families to seek out other services that they may find helpful, such as talking with a religious leader, either in the hospital or the community.

11. Once I have completed the informed-consent protocol and am confident that the patient and their parents understand the risk, benefits, and range of medical treatments for gender dysphoria, I write a letter to the patient's doctor detailing the results of my assessment. In addition to the diagnosis, I discuss the patient's overall mental health and functioning as well as recommendations for continued mental health care, as needed. Although my letters detail a patient's readiness from a mental health perspective, I always recommend that the patient's medical provider undertake a further assessment of the patient before initiating any medical treatment.

12. Given that I work in a hospital setting, it is not uncommon for me to see patients again after they have already begun medical treatment for their gender dysphoria. During those sessions, we often talk about how their treatment is

progressing and the effects it is having on their mental health. In those discussions, we often return to our prior conversations that we had in connection with the informed-consent protocol.

13. I understand that Governor Ivey signed the Vulnerable Child Compassion and Protection Act (the "Act"). My understanding is that the Act expressly prohibits anyone from doing or saying anything that could cause a transgender young person, under the age 19 in Alabama to undergo medical treatment for gender dysphoria. I further understand that violating the Act exposes Alabama healthcare providers and others to criminal prosecution, which could result in me or others being sentenced to prison or a fine. Effectively, the Act prevents transgender young people in Alabama from obtaining medically necessary, safe, effective, and established treatments for their gender dysphoria.

14. For me, the Act means that I would have to abandon my professional and ethical obligations when treating transgender patients or risk criminal penalty for providing mental health care consistent with the prevailing standards of care. I also will be prevented from educating my patients about treatment options for gender dysphoria or referring my patients to medical providers for further evaluation and possibly prescriptions for this essential medical care. I cannot imagine doing that and, as a result, I am very afraid that I will be subject to criminal prosecution and face criminal penalties under the Act.

15. I also am deeply concerned about the effects this law will have on my patients' mental health. Before SB 184 was debated—let alone signed into law—my patients were regularly bullied and harassed in their schools and communities. Because of the dangerous message the Act sends to Alabamians about transgender young people, many of my patients are bracing for an increase in bullying and harassment from those who would feel emboldened by the Act.

16. Receiving medical treatment for gender dysphoria has also significantly improved the mental health and wellbeing of all the patients I have seen. If healthcare providers were required to comply with the Act, it would force transgender young people to put their health-related goals on hold. Their mental health would deteriorate and impair their ability to function in their day-to-day lives. That decline in mental health will cause a cascade of negative health outcomes, including exacerbating co-occurring mental health issues, increased reliance on maladaptive coping mechanisms (*e.g.* cutting, substance abuse), and suicidality. In fact, in the days following the signing of the Act, I had to work with two patients to develop safety plans to prevent them from attempting suicide, a risk that is well-documented and disproportionately affects transgender young people. Talking with them, I could see that the hope they had for the future had been replaced with distress, anxiety and sadness.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 19 th day of April, 2022.

Jane Moe, PhD

Dr. Jane Moe, PhD

DOC. 8-10

EXHIBIT 10

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D.; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity as Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON, in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official capacity as District Attorney for Jefferson County.

Defendants.

Civil Action No.
_____

DECLARATION OF RACHEL KOE, MD, IN SUPPORT OF PLAINTIFFS' MOTION FOR TEMPORARY RESTRAINING ORDER & PRELIMINARY INJUNCTION

I, Rachel Koe,[1] declare as follows:

1. I am a physician licensed to practice by the State of Alabama. I work in southeast Alabama.

2. I attended medical school in Alabama and, since completing my pediatrics residency, have provided care to patients in rural southeast Alabama. I have been practicing for approximately ten years.

3. As a board-certified pediatrician, I treat patients from birth to nineteen years of age. Because I provide primary medical care, my patients present with a wide range of physical and mental health conditions. That also means that I have a wide network of medical and mental health providers that I rely on to refer patients who require subspecialty care. I am very careful with my referrals, ensuring that I am referring my patients to providers who offer quality care and follow evidence-based medicine.

4. About eight years ago, I started treating my first transgender patient. I had learned about gender dysphoria during my medical residency, but had never treated a transgender patient. When the patient first came under my care, he was seeing a therapist, a psychiatrist, and pastoral counselor, but his health and wellbeing

[1] Because of concerns about criminal liability and my privacy and safety, I am seeking to proceed in this case under a pseudonym. *See Motion to Proceed Pseudonymously*, filed concurrently herewith. In addition, contemporaneous with signing this declaration, I have signed with my legal name a separate copy of this declaration. My attorneys have a copy of that separate declaration.

were not improving despite this care. His mother knew that her son, who had been assigned female at birth, was struggling with gender dysphoria, but the only answer she had been given to that point was more psychiatric medication. She came to me scared that her son's declining mental health was placing him at serious risk for self-harm or even suicide.

5. Because of my involvement in pediatrics community in Alabama, I had heard of the gender clinic at UAB and referred this patient to the clinic. The referral was life changing for my patient. After about six months, he started puberty-blocking medications and approximately eighteen months later began taking testosterone. Over that time, my patient became a totally different child. He blossomed in ways that neither I nor his mother could have anticipated.

6. Due to the distance between my patient's home and the gender clinic in Birmingham, he would come to my office for regular blood work. I would always review the test results to make sure there wasn't something urgently wrong and would then pass the results along to his medical providers at the UAB gender clinic. Once my patient started testosterone, he did not feel comfortable self-administering the medication so he came to my office every other week to have my medical staff give him his medication.

7. This patient has graduated from my practice, but his mother keeps me updated on his life. According to his mother, he continues to thrive as a healthy and well-adjusted adult.

8. After seeing the difference in my patient once he received care at the gender clinic, I started to learn more about medical treatments for gender dysphoria so that I would be better able to answer questions posed to me by future patients and their parents. As part of my self-study, I familiarized myself with the medical literature including publications by the World Professional Association for Transgender Health and the Endocrine Society detailing the standards of care for medical treatment for gender dysphoria.

9. Since then, I have treated four more transgender patients. When those patients first came to see me, most had just started expressing that they were transgender. Given that, I referred them to local mental health providers for support. Once the patient was diagnosed with gender dysphoria and reached an age where medical treatment may be appropriate, I referred them to the gender clinic for further evaluation and specialty care. As with my first patient eight years ago, these patients would come to me for regular blood tests and lab work, the results of which would be sent to the UAB gender clinic so their medical providers could monitor their progress.

10. Unfortunately, not all those patients were fortunate enough to have supportive parents to take them for treatment at the UAB gender clinic, but those who did were able to lead the happy and healthy lives that every parent wants for their child. One of those patients is still under my care to this day.

11. As a pediatrician, I see my purpose as increasing access to quality, evidence-based care for children throughout Alabama. If allowed to go into effect, the Vulnerable Child Compassion and Protection Act (the "Act") would do the opposite. My transgender patient, and every other transgender young person across Alabama, would be denied evidence-based medical treatment for gender dysphoria. As a medical provider, this situation is very concerning to me. I am certain that my transgender patient's mental health will suffer significantly if she is denied ongoing medical treatment for her gender dysphoria. If I were to comply with the Act, I would be limited to referring her to counseling and a psychiatrist. Doing so would be a violation of my professional and ethical duties as a physician for two reasons: (1) talk therapy and psychiatric medication alone will not be effective in treating her gender dysphoria; and (2) I would be refusing to provide proven effective treatments, namely puberty-blocking medications and estrogen. That course of treatment is consistent with the standards of care and is well-supported in the medical literature by data published in reputable and peer-reviewed medical journals.

12. This Act also would criminalize me for making appropriate referrals to providers, such as the UAB gender clinic, who can offer the specialized care that transgender young people need. The Act would prevent me from answering parent questions and educating them about the literature underpinning the current standards of care. Without primary care providers who can share that critical information with transgender youth and their parents and connect them with healthcare providers who treat gender dysphoria, families raising transgender children will experience even greater isolation and barriers to medical providers with the necessary expertise to offer quality medical care. Even my support staff are concerned that the broad language used in the Act could result in them violating the Act simply by helping to provide competent quality care.

13. The Act places me in an impossible situation on multiple fronts. If I comply with the Act to avoid criminal penalties, I am abandoning my current transgender patient by not providing medical care consistent with the accepted standard of care. Further, as a medical provider who accepts Alabama Medicaid, and thus receives federal funds, complying with the act would require me to discriminate against transgender patients, jeopardizing all of my patients' access to care by violating federal antidiscrimination laws.

14. This Act also sets a dangerous precedent for interfering with the sanctity of the doctor-patient relationship. If the Alabama legislature can criminalize

evidence-based medical treatment for gender dysphoria, the Act may have a chilling effect on the treatment of many other conditions where public opinion may not align with medical treatments grounded in evidence-based standards of care.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 19 th day of April, 2022.

Rachel Koe, MD

Dr. Rachel Koe, MD

DOC. 20

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER, et al.,	)	
Plaintiffs,	)	
v.	)	Civil Action No.: 2:22-cv-184-LCB-SRW
KAY IVEY, in her official capacity as Governor of the State of Alabama, et al.,	)	
Defendants.	)	

ANSWER OF DEFENDANTS STEVE MARSHALL, DARYL D. BAILEY, C. WILSON BLAYLOCK, JESSICA VENTIERE, TOM ANDERSON, AND DANNY CARR

Defendants Steve Marshall, sued in his official capacity as Attorney General for the State of Alabama, and District Attorneys Darryl D. Bailey, C. Wilson Blaylock, Jessica Ventiere, Tom Anderson, and Danny Carr, each sued in his or her official capacity, state as follows for their Answer to the Plaintiffs' Complaint:[1]

1. Admitted.

2. Denied.

3. Admitted that the Act prohibits certain harmful treatments administered "for the purpose of attempting to alter the appearance of or affirm the

[1] Defendant Kay Ivey, sued in her official capacity as Governor, will also be represented by the undersigned. She will respond separately to the Plaintiffs' Complaint.

minor's perception of his or her gender or sex, if that appearance or perception is inconsistent with the minor's sex as defined in th[e] act." Denied that the Act "targets transgender minors" and denied that the proscribed treatments are "essential to the minors' health care needs."

4. Denied.

5. Admitted that Plaintiffs seek declaratory and injunctive relief to enjoin enforcement of the Act. Denied that they are entitled to any relief.

6. Denied that there are valid grounds for Plaintiffs to proceed anonymously. Otherwise, Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

7. Denied that there are valid grounds for Plaintiffs to proceed anonymously. Otherwise, Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

8. Denied that there are valid grounds for Plaintiffs to proceed anonymously. Otherwise, Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

9. Denied that there are valid grounds for Plaintiffs to proceed anonymously. Otherwise, Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

10. Denied that there are valid grounds for Plaintiffs to proceed anonymously. Otherwise, Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

11. Denied that there are valid grounds for Plaintiffs to proceed anonymously. Otherwise, Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

12. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

13. Admitted.

14. Admitted.

15. Admitted that Defendant Bailey is the District Attorney of Montgomery County with authority to prosecute criminal cases within the applicable judicial circuit.

16. Admitted that Defendant Blaylock is the District Attorney for the 32nd Judicial Circuit with authority to prosecute criminal cases within the circuit.

17. Admitted that Defendant Ventiere is the District Attorney for Lee County with authority to prosecute criminal cases within the applicable judicial circuit.

18. Admitted that Defendant Anderson is the District Attorney for the 12th Judicial Circuit with authority to prosecute criminal cases within the circuit.

19. Admitted that Defendant Carr is the District Attorney for Jefferson County, Alabama, with authority to prosecute criminal cases within the circuit.

20. Admitted that the Attorney General and District Attorneys have authority to enforce the Act. Denied that Governor Ivey possesses any authority to enforce the Act.

21. Admitted that Plaintiffs seek relief under the United States Constitution, the equitable powers of the Court, and a preemption claim related to Section 1557 of the Affordable Care Act. Denied that they are entitled to any relief.

22. Defendant does not contest personal jurisdiction.

23. Admitted that venue is proper in the Middle District of Alabama.

24. Denied.

25. Admitted that this Court has the authority to enter a declaratory judgment and provide equitable relief in a proper case. Denied that the Plaintiffs in this case are entitled to any relief.

26. Denied.

27. Denied.

28. Denied.

29. Denied.

30. Denied.

31. Admitted that WPATH has published purported "Standards of Care" for treatment of transgender people. Denied that WPATH is qualified to do so or that the resulting "Standards of Care" are based upon sound medical science.

32. Admitted that the Endocrine Society has promulgated a "guideline" for the provision of hormone therapy as a treatment of gender dysphoria in minors and adults. Denied that the "guideline" is based upon sound medical science.

33. Denied.

34. Denied that the described course of treatment generally reduces psychological distress of minors with gender dysphoria. Averred that the described course of treatment is experimental, harmful, and irreversible.

35. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

36. Denied.

37. Denied.

38. Denied.

39. Admitted.

40. Denied.

41. Admitted.

42. Admitted.

43. Denied.

44. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

45. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

46. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

47. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

48. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

49. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

50. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

51. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

52. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

53. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

54. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

55. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

56. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

57. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

58. Admitted that under the challenged Act, the described experimental, harmful, irreversible treatments will not be available to minors in Alabama if administered "for the purpose of attempting to alter the appearance of or affirm the minor's perception of his or her gender or sex, if that appearance or perception is inconsistent with the minor's sex as defined in th[e] act." Denied that such treatments are essential to Plaintiff Zachary's mental health, and denied that stopping such treatments will cause a person's physical and mental health to suffer.

59. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

60. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

61. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

62. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

63. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

64. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

65. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

66. Admitted that under the challenged Act, the described experimental, harmful, irreversible treatments will not be available to minors in Alabama if administered "for the purpose of attempting to alter the appearance of or affirm the minor's perception of his or her gender or sex, if that appearance or perception is inconsistent with the minor's sex as defined in th[e] act." Otherwise denied.

67. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

68. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

69. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

70. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

71. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

72. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

73. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

74. Denied.

75. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

76. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

77. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

78. Denied.

79. Denied.

80. Denied.

81. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

82. Denied that Dr. Moe's work with transgender patients is guided by "well-established standards of care." Otherwise, Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

83. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

84. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

85. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

86. Denied.

87. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

88. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

89. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

90. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

91. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

92. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

Count I

93. Defendants incorporate the foregoing paragraphs as if set forth fully herein.

94. Admitted.

95. The cases cited by Plaintiffs speak for themselves. Otherwise denied.

96. Denied.

97. Denied.

98. Denied.

Count II

99. Defendants incorporate the foregoing paragraphs as if set forth fully herein.

100. Admitted.

101. Admitted.

102. Denied.

103. Denied.

104. Denied.

105. Admitted that some classifications based on sex are subject to intermediate scrutiny. Denied that the Act discriminates on the basis of sex.

106. Denied.

107. Denied.

108. Denied.

109. Denied.

Count III

110. Defendants incorporate the foregoing paragraphs as if set forth fully herein.

111. Admitted.

112. The cited statute speaks for itself. Otherwise denied.

113. Denied.

114. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

115. Denied.

116. Defendants lack sufficient information to admit or deny the allegations in this paragraph, and therefore denies the same.

117. Denied.

118. Denied.

119. Denied.

120. Denied.

Count IV

121. Defendants incorporate the foregoing paragraphs as if set forth fully herein.

122. Admitted.

123. Admitted.

124. Admitted.

125. Denied.

126. Denied.

Count V

127. Defendants incorporate the foregoing paragraphs as if set forth fully herein.

128. Admitted.

129. The cited case speaks for itself.

130. Admitted that Plaintiffs have quoted a portion of the challenged Act.

131. Denied.

132. Denied.

Prayer for Relief

Defendants deny that Plaintiffs are entitled to any relief.

General Denial

Defendants deny each allegation in Plaintiffs' Complaint that is not expressly admitted above.

Additional Defenses

1. Defendants preserve the defense of sovereign immunity.

2. There is medical uncertainty concerning the proper treatment of gender dysphoria, and the Alabama Legislature has legal authority to regulate such treatment.

3. Plaintiffs have no private right of action under the Affordable Care Act.

4. The equities do not favor injunctive or declaratory relief.

5. The equities do not favor emergency injunctive relief.

6. Plaintiffs are not likely to prevail on the merits.

7. Plaintiffs have unclean hands.

8. One or more Plaintiffs lack standing to assert some or all of their claims.

9. Plaintiffs fail to state a claim on which relief may be granted.

10. Governor Ivey, who will file a separate motion to dismiss, did not cause any injury to Plaintiffs and cannot redress any alleged injury suffered by Plaintiffs.

Respectfully submitted,

Steve Marshall
Attorney General

/s/ James W. Davis
Edmund G. LaCour Jr. (ASB-9182-U81L)
Solicitor General
A. Barrett Bowdre (ASB-2087-K29V)
Deputy Solicitor General
James W. Davis (ASB-4063-I58J)
Deputy Attorney General
Benjamin M. Seiss (ASB-2110-O00W)
Assistant Attorney General

OFFICE OF THE ATTORNEY GENERAL
STATE OF ALABAMA
501 Washington Avenue
P.O. Box 300152
Montgomery, Alabama 36130-0152
Telephone: (334) 242-7300
Edmund.LaCour@AlabamaAG.gov
Barrett.Bowdre@AlabamaAG.gov
Jim.Davis@AlabamaAG.gov
Ben.Seiss@AlabamaAG.gov

Counsel for Defendants Steve Marshall, Daryl D. Bailey, C. Wilson Blaylock, Jessica Ventiere, Tome Anderson, and Danny Carr

CERTIFICATE OF SERVICE

I hereby certify that on April 21, 2022 I electronically filed the foregoing with the Clerk of the Court using the CM/ECF system, which will send notification of such filing to all counsel of record.

/s/ James W. Davis
Counsel for Defendants Steve Marshall, Daryl D. Bailey, C. Wilson Blaylock, Jessica Ventiere, Tome Anderson, and Danny Carr

DOC. 34

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

PAUL A. EKNES-TUCKER, *et al.*,	)	
	)	
Plaintiffs,	)	
	)	
v.	)	**Case No. 2:22-cv-184-LCB**
	)	
KAY IVEY, *et al.*,	)	
	)	
Defendants.	)	

ORDER

Upon consideration of Plaintiffs' motion to proceed pseudonymously (Doc. 6) and motion for a temporary restraining order and/or a preliminary injunction (Doc. 7), the Court ORDERS as follows:

An evidentiary hearing on Plaintiffs' motion for a temporary restraining order and/or a preliminary injunction is set for Thursday, May 5, 2022, at 9:00 a.m. CDT. The hearing is scheduled to last no longer than two days with the time allotted strictly as represented by the parties during today's status conference. The hearing will occur in Courtroom 2F of the Frank M. Johnson, Jr., United States Courthouse Complex. Forty-eight hours before the hearing begins, the parties shall file their proposed exhibits and a list of expected witnesses.

On or before April 27, 2022, Defendants shall file a response to Plaintiffs' motion to proceed pseudonymously. Plaintiffs' reply is due thirty-six hours after Defendants file their response.

On or before May 2, 2022, Defendants shall file a response to Plaintiffs' motion for a temporary restraining order and/or a preliminary injunction. Plaintiffs' reply is due thirty-six hours after Defendants file their response.

DONE and **ORDERED** April 22, 2022.

LILES C. BURKE
UNITED STATES DISTRICT JUDGE

DOC. 62

**IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION**

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D.; and RACHEL KOE, M.D.

Plaintiffs,

and

UNITED STATES OF AMERICA,

Plaintiff-Intervenor,

v.

STATE OF ALABAMA; KAY IVEY, in her official capacity as Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON, in his official capacity as District Attorney for

Case No.
2:22-cv-184-LCB-SRW

Honorable Liles C. Burke

Opposed

the 12th Judicial Circuit; and DANNY CARR, in his official capacity as District Attorney for Jefferson County.

Defendants.

PLAINTIFF-INTERVENOR UNITED STATES' MOTION FOR TEMPORARY RESTRAINING ORDER AND A PRELIMINARY INJUNCTION

Plaintiff-Intervenor the United States of America ("United States"), pursuant to Rule 65 of the Federal Rules of Civil Procedure, hereby moves for a temporary restraining order and preliminary injunction to enjoin Defendants' enforcement of Section 4 of Alabama Senate Bill ("S.B.") 184. Counsel for the United States has spoken to counsel in the Alabama Attorney General's Office, who indicated that the Defendants oppose the relief requested in this motion.

The felony ban on various forms of gender-affirming medical care for transgender minors contained in Section 4 of S.B. 184 discriminates on the basis of sex and transgender status in violation of the Equal Protection Clause of the Fourteenth Amendment of the United States Constitution. The factual and legal bases for the United States' motion are set forth in the accompanying Memorandum in Support of Plaintiff-Intervenor United States' Motion for a Temporary Restraining Order and a Preliminary Injunction. The United States acknowledges that its Motion to Intervene [Dkt. No. 58], and Motion for Leave to

File Excess pages [Dkt. No. 60], are still pending and have not been ruled on by the Court [Dkt. No. 61].

In filing this motion, the United States does not seek to delay the case or the already-scheduled proceedings. The United States recognizes that S.B. 184 will go into effect on May 8, 2022 and that the *Eknes-Tucker* Plaintiffs previously filed a motion for a temporary restraining order and preliminary injunction, and that the Court has set a hearing on that motion, which is scheduled to begin on May 5, 2022. The United States' complaint in intervention and this motion do not raise any new claims and the government is prepared to argue and present evidence in support of this motion at the upcoming hearing, if permitted by the Court. The United States is also willing to forego filing a reply brief to prevent prejudice to the other parties.

Dated: April 29, 2022

Respectfully submitted,

SANDRA J. STEWART
United States Attorney
Middle District of Alabama

PRIM F. ESCALONA
United States Attorney
Northern District of Alabama

LANE H. WOODKE
Chief, Civil Division
Northern District of Alabama

s/Jason R. Cheek
JASON R. CHEEK
Deputy Chief, Civil Division
U.S. Attorney's Office
Northern District of Alabama
1801 Fourth Avenue North
Birmingham, Alabama 35203
Tel.: (205) 244-2104
Jason.Cheek@usdoj.gov

STEPHEN D. WADSWORTH
Assistant United States Attorney
U.S. Attorney's Office
Middle District of Alabama
Post Office Box 197
Montgomery, Alabama 36101-0197
Tel.: (334) 223-7280
Stephen.Wadsworth@usdoj.gov

KRISTEN CLARKE
Assistant Attorney General
Civil Rights Division

JOHN POWERS (DC Bar No. 1024831)
Counsel to the Assistant Attorney General
Civil Rights Division

CHRISTINE STONEMAN
Chief, Federal Coordination and
Compliance Section

COTY MONTAG (DC Bar No. 498357)
Deputy Chief, Federal Coordination and
Compliance Section

s/Alyssa C. Lareau
ALYSSA C. LAREAU (DC Bar No. 494881)
RENEE WILLIAMS (CA Bar No. 284855)
KAITLIN TOYAMA (CA Bar No. 318993)
Trial Attorneys
United States Department of Justice
Civil Rights Division
Federal Coordination and Compliance Section
950 Pennsylvania Avenue NW – 4CON
Washington, DC 20530
Tel.: (202) 305-2994
Alyssa.Lareau@usdoj.gov
Renee.Williams3@usdoj.gov
Kaitlin.Toyama@usdoj.gov

Attorneys for Plaintiff-Intervenor United States of America

CERTIFICATE OF SERVICE

I hereby certify that on April 29, 2022, I electronically filed the foregoing with the Clerk of the Court using the CM/ECF system, which will send notification of such filing to counsel of record.

Respectfully submitted,

s/ *Jason R. Cheek*
Jason R. Cheek
Assistant U.S. Attorney

DOC. 62-1

**IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION**

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D.; and RACHEL KOE, M.D.

Plaintiffs,

and

UNITED STATES OF AMERICA,

Plaintiff-Intervenor,

v.

STATE OF ALABAMA; KAY IVEY, in her official capacity as Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON, in his official capacity as District Attorney for

Case No.
2:22-cv-184-LCB-SRW

Honorable Liles C. Burke

the 12th Judicial Circuit; and DANNY CARR, in his official capacity as District Attorney for Jefferson County.

Defendants.

MEMORANDUM IN SUPPORT OF PLAINTIFF-INTERVENOR UNITED STATES' MOTION FOR A TEMPORARY RESTRAINING ORDER AND A PRELIMINARY INJUNCTION

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INTRODUCTION

This lawsuit challenges a state statute that denies necessary medical care to children based solely on who they are. The "Alabama Vulnerable Child Compassion and Protection Act," No. 2022-289, Senate Bill ("S.B.") 184 (2022), conditions whether a minor can receive certain forms of medical care on the sex that young person was assigned at birth. Section 4 of S.B. 184 makes it a felony for any person to "engage in or cause" medically necessary gender-affirming procedures and treatments for transgender minors, while leaving other minors free to receive the same procedures and treatments.

By denying transgender minors—and only transgender minors—access to gender-affirming care, S.B. 184 violates the Equal Protection Clause of the Fourteenth Amendment. The law unjustifiably prohibits transgender minors from accessing medically necessary and appropriate care, while imposing no such limitation on cisgender minors. S.B. 184 discriminates on the basis of both sex and transgender status, and it fails intermediate scrutiny. The law's ban on medically necessary gender-affirming care for transgender minors is not substantially related to serving an important government objective. To the contrary: the law actually harms the health of transgender youth. And it reflects a bias against transgender individuals that can never provide a legitimate basis for legislation. Indeed, S.B. 184 would not even survive rational-basis review.

Implementation of S.B. 184 will have immediate, drastic, and often traumatic physical and psychological impacts on vulnerable transgender children and will cause irreparable harm to medical professionals, parents and caregivers, transgender minors, and the interests of the United States. The balance of the equities and the public interest also justify preliminary relief. Therefore, the United States respectfully requests that this Court grant this motion.

BACKGROUND

I. Transgender Youth and Their Need for Medically Necessary and Appropriate Gender-Affirming Care

Transgender people are individuals whose gender identity does not conform with the sex they were assigned at birth. A transgender boy is a child or youth who was assigned a female sex at birth but whose gender identity is male; a transgender girl is a child or youth who was assigned a male sex at birth but whose gender identity is female. By contrast, a cisgender child has a gender identity that corresponds with the sex the child was assigned at birth. A person's gender identity is innate.

According to the American Psychiatric Association's Diagnostic & Statistical Manual of Mental Disorders,[1] "gender dysphoria" is the diagnostic term for the condition experienced by some transgender people of clinically significant

[1] American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition, Text Revision (2022), https://perma.cc/FM78-QMZ2.

distress resulting from the lack of congruence between their gender identity and the sex assigned to them at birth. Declaration of Dr. Stephen Rosenthal, MD, in Support of Plaintiffs' Motion for a Temporary Restraining Order & Preliminary Injunction, Dkt. 8-3 ("Rosenthal Decl.") ¶¶ 24-25; Declaration of Dr. Linda A. Hawkins, Ph.D., LPC, in Support of Plaintiffs' Motion for a Temporary Restraining Order & Preliminary Injunction, Dkt. 8-1 ("Hawkins Decl.") ¶ 25.

To be diagnosed with gender dysphoria, the incongruence between sex assigned at birth and gender identity must persist for at least six months and be accompanied by clinically significant distress or impairment in occupational, social, or other important areas of functioning. Rosenthal Decl. ¶ 25. The inability of transgender youth to live consistent with their gender identity due to irreversible physical changes in their bodies has significant negative impacts on their overall health and well-being. *See* Hawkins Decl. ¶¶ 45-46. The delay or denial of medically necessary treatment for gender dysphoria causes many transgender minors to develop serious co-occurring mental health conditions, such as anxiety, depression, and suicidality. Rosenthal Decl. ¶¶ 26, 55; *see also* Hawkins Decl. ¶ 41.

Gender dysphoria is highly treatable with the use of medical treatments that address the clinically significant distress by helping people who are transgender live in alignment with their gender identity. *See* Rosenthal Decl. ¶¶ 23, 26. The

precise treatments for gender dysphoria depend on each person's individualized needs. *Id*. ¶ 23; Hawkins Decl.¶¶ 32-37. The types of treatments provided differ depending on the patient's age. Rosenthal Decl. ¶ 33.

Medical treatment standards for gender dysphoria, including for minors, are well-established. Declaration of Dr. Armand Antommaria in Support of Plaintiff-Intervenor United States' Motion for a Temporary Restraining Order and a Preliminary Injunction ("Antommaria Decl."), attached hereto as Exhibit 1, ¶¶ 17, 23-38. The American Academy of Pediatrics agrees that gender-affirming care is safe, effective, and necessary for the health and wellbeing of minors suffering from gender dysphoria.[2] *Id*. ¶¶ 34-35. Before puberty, treatment for gender dysphoria does not include pharmaceutical or surgical intervention and is limited to "social transition." Hawkins Decl. ¶ 27. Social transition refers to allowing a transgender child to live and express themselves in ways consistent with their gender identity. *See id*. ¶¶ 27-29.

The Endocrine Society's clinical practice guidelines recognize that as transgender youth reach puberty, puberty-delaying hormone therapy may become medically necessary and appropriate. *See* Antommaria Decl. ¶¶ 27, 35. This treatment allows transgender youth to avoid going through endogenous puberty

[2] Jason Rafferty, *Ensuring Comprehensive Care and Support for Transgender and Gender-Diverse Children and Adolescents*, American Academy of Pediatrics Policy Statement (Oct. 1, 2018), https://perma.cc/D4R6-GP6C.

and the heightened gender dysphoria and permanent physical changes that puberty would cause. *See* Rosenthal Decl. ¶¶ 36-37. This treatment is not experimental: medications that delay the onset of puberty have been used for decades to treat early onset or "precocious puberty" for cisgender adolescents. Antommaria Decl. ¶¶ 23, 33.

Interventions such as prescribing puberty-blocking medication and hormone replacement therapy require substantial planning and consultation with medical and mental health providers. *See id*. ¶¶ 16, 42; Rosenthal Decl. ¶ 47. Under the Endocrine Society's clinical guidelines, transgender adolescents may be eligible for puberty-blocking hormone therapy only if the following steps have been taken:

- A qualified mental health professional confirms the adolescent has demonstrated a long-lasting and intense pattern of gender nonconformity or gender dysphoria, gender dysphoria worsened with the onset of puberty, and any coexisting psychological, medical, or social problems that could interfere with treatment have been addressed, such that the patient's situation and functioning are stable enough to start treatment;

- The adolescent has sufficient mental capacity to give informed consent to this treatment, has been informed of the effects and side effects of treatment (including potential loss of fertility) and options to preserve fertility; and has given informed consent and the parents or other caretakers or guardians have consented to the treatment and are involved in supporting the adolescent throughout the treatment process; and

- A pediatric endocrinologist or other clinician experienced in pubertal assessment agrees with the indication for treatment, has confirmed that puberty has started in the adolescent, and has confirmed that there are no medical contraindications to treatment.

See Antommaria Decl. ¶¶ 41-42.[3]

For some transgender adolescents, it may also be medically necessary and appropriate to provide hormone therapy to initiate puberty consistent with their gender identity. *Id*. ¶¶ 28, 35. Evaluation for this treatment generally occurs starting around age 14; transgender adolescents are only eligible for hormone therapy if the steps above are satisfied. *Id*. ¶ 42. Under the World Professional Association for Transgender Health clinical guidelines, adolescents who are transgender may receive chest reconstructive surgery prior to the age of majority if they have severe gender dysphoria, provided they have been living consistent with their gender identity for a significant period of time. *See id*. ¶ 42. Other types of surgical interventions, including genital surgery, are not recommended until a patient has reached the age of majority. *Id*. ¶ 35.

II. The Legislative Debate Regarding Senate Bill 184

The process that produced S.B. 184 is replete with expressions of skepticism about and hostility to the needs of transgender youth. In 2021 statement, for example, Representative Wes Allen, a sponsor of S.B. 184, explained that a motivation behind legislation banning gender-affirming care for transgender youth

[3] Wylie Hembree, Peggy Cohen-Kettenis, & Louis Gooren et al., *Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline*, The Journal of Clinical Endocrinology & Metabolism 3869-3903, Vol. 102, Issue 11 (Nov. 2017), https://perma.cc/8R3P-6NQY.

is to affirm that if children "are born male, that they're a male and if they're born female, they're a female."[4]

During legislative debates, proponents of S.B. 184, including Representative Allen[5] and another bill sponsor, Senator Shay Shelnutt, [6] referred to gender-affirming care, when provided to transgender youths as "child abuse" without explaining why gender-affirming care for all other youth is entirely appropriate.

Furthermore, during a March 2, 2022 House Judiciary Committee hearing held on Alabama House Bill 266 (a companion bill to S.B. 184), Representative Allen compared gender-affirming medical care to "vaping," "dealing with cigarettes," and "dealing with drinking"—each of them a form of voluntary activity that he characterized as antisocial.[7] Representative Allen also compared prescribing medications in the context of gender-affirming care to giving "anabolic steroids" to young boys who believe they are a "Division I athlete" or a "professional athlete."[8] And later, during debate on April 7, 2022, Representative Allen not only analogized gender-affirming care to another often-criticized practice

[4] Tony Perkins, *Wes Allen Discusses Upcoming Alabama Senate Vote on Vulnerable Child Compassion and Protection Act*, YouTube (Feb. 15, 2021), https://www.youtube.com/watch?v=E9Q_b22cUWw.
[5] Alabama House Judiciary Committee, *House Judy Committee – 3/2/2022, 1:34:28 PM*, Vimeo (Mar. 2, 2022), https://vimeo.com/683940881/4edaeefda2.
[6] Kiara Alfonseca, *Alabama Governor Signs 'Don't Say Gay,' Trans Care, and Bathroom Ban Bills*, ABC News (Apr. 8, 2022), https://perma.cc/6ESP-A8E9.
[7] Alabama House Judiciary Committee, *supra* note 5.
[8] *Id*.

but criticized parents who seek it for their children, stating, "We do not allow children to get tattoos even with parental permission. And why not? Because we do not allow parents to permanently alter the bodies of their children."[9] Even on its own terms, this statement is inaccurate; in fact, Alabama law does permit minors to obtain a tattoo with prior written informed consent of the parent or legal guardian. Ala. Code § 22-17A-2(a).

In signing S.B. 184 into law, Governor Kay Ivey also expressed moral disapproval of gender-affirming care for transgender youth: "I believe very strongly that if the Good Lord made you a boy, you are a boy, and if He made you a girl, you are a girl . . . [L]et us all focus on helping them to properly develop into the adults God intended them to be."[10]

III. Senate Bill 184

Governor Ivey signed S.B. 184 into law on April 8, 2022. The law becomes effective on May 8, 2022. *See* S.B. 184, § 11.

Section 3 of the bill defines "sex" as the "biological state of being male or female, based on the individual's sex organs, chromosomes, and endogenous hormone profiles." *Id.* at § 3(3). S.B. 184's legislative findings reject the need for interventions to treat gender dysphoria, describing such treatments as "unproven"

[9] Alabama House of Representatives, *House Part 1 – 4/7/2022, 9:32:05 AM*, Vimeo (April 7, 2022), https://vimeo.com/697000650/59a642f5d4.
[10] Alfonseca, *supra* note 6.

and "experimental" and causing "numerous harmful effects." *Id*. at § 2(11). The findings characterize a "discordance between their sex and identity" as a phase that resolves itself over time in most cases. *Id*. at § 2(4)-(5).

Section 4 of S.B. 184 states that "no person shall engage in or cause" specified types of medical care to be performed on a minor[11] with "the purpose of attempting to alter the appearance of or affirm the minor's perception of his or her gender or sex, if that appearance or perception is inconsistent" with their sex assigned at birth. *Id*. at § 4(a). The practices prohibited by Section 4 of S.B. 184 include administering puberty blockers, administering hormone therapy, and surgical interventions (including the removal of "any healthy or non-diseased body part or tissue, except for a male circumcision"). *Id.* at § 4(a)(1)-(6). Notably, there is an exception for procedures "undertaken to treat a minor born with a medically verifiable disorder of sex development." *Id.* at § 4(b).

A violation of Section 4 of S.B. 184 is a Class C felony, *id.* at § 4(c), which is punishable by up to 10 years of imprisonment and a fine of up to $15,000. *See* Ala. Crim. Code §§ 13-A-5-6(a)(3), 13A-5-11(a)(3).

By its very terms, Section 4 of S.B. 184 means that parents of transgender youth, transgender minors old enough to make their own medial decisions, health

[11] In Alabama, the age of majority is nineteen. Ala Crim. Code § 26-1-1(a).

care professionals, and others are forced to choose between forgoing medically necessary procedures and treatments or facing criminal prosecution.

ARGUMENT

For a court to issue a preliminary injunction, the plaintiff must establish the following: "(1) substantial likelihood of success on the merits; (2) irreparable injury will be suffered unless the injunction issues; (3) the threatened injury to the movant outweighs whatever damage the proposed injunction may cause the opposing party; and (4) if issued, the injunction would not be adverse to the public interest." *United States v. Alabama*, 691 F.3d 1269, 1281 (11th Cir. 2012). Each of these factors is satisfied here.

I. The United States is Likely to Succeed on the Merits of its Equal Protection Claim

The United States is likely to succeed on the merits because Section 4 of S.B. 184 violates the Equal Protection Clause of the Fourteenth Amendment by discriminating against transgender minors on the basis of their sex and their membership in a quasi-suspect class. Not only does Section 4 fail the heightened scrutiny applicable to such laws; it would fail even rationality review.

A. S.B. 184's Ban on Gender-Affirming Medical Care Warrants Heightened Scrutiny Under the Equal Protection Clause

Section 4 of S.B. 184 is subject to heightened scrutiny because, in forbidding transgender youth to obtain medically necessary gender-affirming care while

leaving all other minors eligible for such care, it discriminates on the basis of sex and transgender status.

1. S.B. 184's Ban on Gender-Affirming Care Discriminates on the Basis of Sex and Therefore Triggers Intermediate Scrutiny

S.B. 184 bans gender-affirming care only when that care is being provided to transgender individuals. As the Supreme Court instructed, treating an individual differently because that person is transgender "unavoidably" constitutes sex discrimination because it rests on a person's having "one sex identified at birth" but identifying with a different sex or gender "today." *Bostock v. Clayton County, Ga.*, 140 S. Ct. 1731, 1746 (2020). Similarly, the Eleventh Circuit has held that differential treatment based on "gender-nonconformity is sex discrimination, whether it's described as being on the basis of sex or gender." *Glenn v. Brumby*, 663 F.3d 1312, 1317 (11th Cir. 2011). Other circuits have held the same. *See Grimm v. Gloucester Cnty. Sch. Bd.*, 972 F.3d 586, 608-10 (4th Cir. 2020), *as amended* (Aug. 28, 2020); *Whitaker By Whitaker v. Kenosha Unified Sch. Dist. No. 1 Bd. of Educ.*, 858 F.3d 1034, 1051 (7th Cir. 2017) (school policy requiring students to use bathroom in accordance with the sex on the student's birth certificate "is inherently based upon a sex-classification"); *D.T. v. Christ*, 552 F. Supp. 3d 888, 896 (D. Ariz. 2021); *Flack v. Wisconsin Dep't of Health Servs.*, 328 F. Supp. 3d 931, 948 (W.D. Wis. 2018).

Section 4 of S.B. 184 discriminates against transgender minors by

unjustifiably denying them access to certain forms of medically necessary care. The law prohibits transgender minors from obtaining care that has been well established as medically appropriate and necessary, while imposing no comparable limitation on cisgender minors for obtaining the same forms of care.

In addition, Section 4 of S.B. 184 expressly discriminates on the basis of sex because the medical treatments available to an Alabama minor under S.B. 184 depend on the sex that minor was assigned at birth based on "the individual's sex organs, chromosomes, and endogenous hormone profiles." S.B. 184, § 3. Under S.B. 184, if a minor was assigned male at birth, that minor cannot receive any of the treatments or procedures identified in Section 4 that would "alter the appearance of" the minor in a way that is "inconsistent" with being male or that would "affirm" the minor's "perception" of being female. *See* S.B. 184, § 4(a). Similarly, if a minor was assigned female at birth, that minor cannot receive any of the treatments or procedures identified in Section 4 that would "alter the appearance of" the minor in a way that is "inconsistent" with being female or that would "affirm" the minor's "perception" of being male. *See id* at § 4(a). By contrast, all other minors can access the covered treatments because those treatments are, for them, consistent with the sex the minor was assigned at birth. *See id.* at § 4(a). S.B. 184 also discriminates on the basis of sex because it conditions the availability of particular medical procedures on a sex stereotype:

that an individual's gender identity should match the sex that individual was assigned at birth. *See Glenn*, 663 F.3d at 1316, 1319-20; *see also United States v. Virginia*, 518 U.S. 515, 549-50 (1996).

Sex-based classifications like S.B. 184 are subject to heightened constitutional scrutiny, specifically intermediate scrutiny. *Virginia*, 518 U.S. at 555; *Glenn*, 663 F.3d at 1315-16 (citations and quotations omitted).

2. S.B. 184's Ban on Gender-Affirming Medical Care Discriminates Against Transgender Individuals, And Therefore Triggers Intermediate Scrutiny

S.B. 184 also warrants heightened scrutiny because it discriminates on the basis of transgender status. Its legislative findings reflect an intent to target transgender minors—and only transgender minors—by expressing a commitment to preventing medical care that addresses youth who experience "discordance between their sex and their internal sense of identity" and "reveal signs of gender nonconformity," including those designated with "gender dysphoria." *Compare* S.B. 184 § 2(2), 2(5), *with* Antommaria Decl. ¶¶ 43-45.[12]

A law that criminalizes access to particular medical treatments based on

[12] It does not matter that S.B. 184 never expressly uses the word "transgender," since it is clear beyond doubt that transgender minors are the focus on the bill. "Some activities may be such an irrational object of disfavor that, if they are targeted, and if they also happen to be engaged in exclusively or predominantly by a particular class of people, an intent to disfavor that class can readily be presumed." *Bray v. Alexandria Women's Health Clinic*, 506 U.S. 263, 270 (1993); *see also Bostock*, 140 S. Ct. at 1741 (noting that it is "it is impossible to discriminate against a person for being . . . transgender without discriminating against that individual based on sex"); *Christ*, 552 F. Supp. 3d at 895-96.

individuals' transgender status demands heightened scrutiny because transgender people are a quasi-suspect class, as the two circuits to have squarely addressed the question have held. *See Grimm*, 972 F.3d at 611; *Karnoski v. Trump*, 926 F.3d 1180, 1200 (9th Cir. 2019). Several district courts have concluded the same.[13]

An analysis of the factors used by the Supreme Court confirms that classifications based on transgender status warrant heightened scrutiny.[14] First, transgender people, as a class, have historically been subject to discrimination and continue to "face discrimination, harassment, and violence because of their gender identity." *Whitaker*, 858 F.3d at 1051; *see also Grimm*, 972 F.3d at 611-12; *Flack*, 328 F. Supp. 3d at 953; *M.A.B.*, 286 F. Supp. 3d at 720; *Evancho*, 237 F. Supp. 3d at 288; *Highland*, 208 F. Supp. 3d at 874; *Adkins*, 143 F. Supp. 3d at 139.[15]

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[13] *See F.V. v. Barron*, 286 F. Supp. 3d 1131, 1145 (D. Idaho 2018), *decision clarified sub nom. F.V. v. Jeppesen*, 477 F. Supp. 3d 1144 (D. Idaho 2020); *Flack*, 328 F. Supp. 3d at 951-53; *M.A.B. v. Bd. of Educ. of Talbot Cnty.*, 286 F. Supp. 3d 704, 719 (D. Md. 2018); *Evancho v. Pine-Richland Sch. Dist.*, 237 F. Supp. 3d 267, 288 (W.D. Pa. 2017); *Bd. of Educ. of the Highland Loc. Sch. Dist. v. United States Dep't of Educ.*, 208 F. Supp. 3d 850, 873-74 (S.D. Ohio 2016); *Adkins v. City of New York*, 143 F. Supp. 3d 134, 139-140 (S.D.N.Y. 2015); *Norsworthy v. Beard*, 87 F. Supp. 3d 1104, 1119 (N.D. Cal. 2015).

[14] Those factors include whether the class (1) has historically been subjected to discrimination, *see Lyng* v. *Castillo*, 477 U.S. 635, 638 (1986); (2) has a defining characteristic that "frequently bears no relation to ability to perform or contribute to society," *City of Cleburne, Tex. v. Cleburne Living Ctr.*, 473 U.S. 432, 440-441 (1985); (3) has "obvious, immutable, or distinguishing characteristics that define them as a discrete group," *Lyng*, 477 U.S. at 638; and (4) is a minority lacking political power, *Bowen v. Gilliard*, 483 U.S. 587, 602 (1987).

[15] Ample evidence indicates that transgender people experience higher levels of physical and sexual violence, harassment, and discrimination in the workplace, housing, healthcare, and school than their non-transgender counterparts. Nearly half (47%) of respondents to the 2015 U.S. Transgender Survey reported being sexually assaulted. Sandy E. James et al., Nat'l Ctr. for Transgender Equal., *The Report of the 2015 U.S. Transgender Survey* (Dec. 2016), https://perma.cc/5CL3-RG9E (hereinafter USTS Report). Over 77% of respondents to the 2015

Second, no "data or argument suggest[s] that a transgender person, simply by virtue of transgender status, is any less productive than any other member of society." *Adkins*, 143 F. Supp. 3d at 139.[16] The American Psychiatric Association has concluded that "[b]eing transgender or gender diverse implies no impairment in judgment, stability, reliability, or general social or vocational capabilities."[17]

Third, transgender individuals share "obvious, immutable, *or* distinguishing characteristics that define them as a discrete group." *Bowen*, 483 U.S. at 602 (quoting *Lyng*, 477 U.S. at 638) (emphasis added). Specifically, transgender individuals' "gender identity does not align with the gender they were assigned at birth." *M.A.B.*, 286 F. Supp. 3d at 721. Multiple courts have held that transgender status is immutable, and "being transgender is not a choice[,] [r]ather, it is as natural and immutable as being cisgender." *Grimm*, 972 F.3d at 612-613.[18]

Fourth, people who are transgender lack political power. *See id*. at 613. While the number of openly transgender elected officials is growing, they still

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U.S. Transgender Survey who were out or perceived as transgender in kindergarten through twelfth grade reported having one or more negative experiences (such as verbal harassment or physical attacks) in K-12 because people thought they were transgender. *Id*. at 132, 133. Another recent study found 61% of employed transgender respondents between the ages of thirteen to twenty-four reported experiencing discrimination in the workplace. The Trevor Project, *Research Brief: LGBTQ Youth in the Workplace* (Mar. 30, 2021), https://perma.cc/TG7W-E4J3.

[16] *Accord Grimm*, 972 F.3d at 612; *M.A.B.*, 286 F. Supp. 3d at 720; *Evancho*, 237 F. Supp. 3d at 288; *Highland*, 208 F. Supp. 3d at 874; *Norsworthy*, 87 F. Supp. 3d at 1119 n.8.

[17] APA Assembly and Board of Trustees, *Position Statement on Discrimination Against Transgender and Gender Diverse Individuals* (2012, 2018), https://perma.cc/ES7D-YVG2.

[18] *See also M.A.B.*, 286 F. Supp. 3d at 720-721; *Evancho*, 237 F. Supp. 3d at 288; *Highland*, 208 F. Supp. 3d at 874; *Norsworthy*, 87 F. Supp. 3d at 1119 n.8; *Adkins*, 143 F. Supp. 3d at 139-40.

represent a fraction of office holders. *Id.* The proliferation of enacted legislation aimed at restricting the rights of transgender individuals, particularly transgender minors, is further evidence of the limited political power of the transgender community.[19]

Because Section 4 of S.B. 184 discriminates against transgender persons and they constitute a quasi-suspect class, the statute is subject to intermediate scrutiny.

B. S.B. 184 Fails Heightened Scrutiny Because it is Not Substantially Related to Achieving Alabama's Articulated Governmental Interests

To survive heightened scrutiny, the State must show that Section 4 of S.B. 184 "serves important governmental objectives" and that the "discriminatory means employed are substantially related to achievement of those objectives." *See Virginia*, 518 U.S. at 524 (quoting *Mississippi Univ. for Women v. Hogan*, 458 U.S. 718, 724 (1982)); *see also Craig v. Boren*, 429 U.S. 190, 197 (1976). "The burden of justification is demanding and it rests entirely on the State." *Virginia*, 518 U.S. at 533 (quoting *Mississippi Univ. for Women*, 458 U.S. at 724). Heightened scrutiny requires that the justification proffered be "exceedingly

[19] The very same day Governor Ivey signed S.B. 184 into law, she also signed H.B. 322 into law. Alfonseca, *supra* note 6. H.B. 322 requires students in public K-12 schools to only use bathrooms and locker rooms that correspond with the sex listed on their original birth certificate; it also bans classroom instruction regarding sexual orientation and gender identity that is not age or developmentally "appropriate." Alabama has also issued Policy Order 63, which requires transgender individuals to undergo "gender reassignment surgery" before they may amend the sex designation on their driver's licenses. *See Corbitt v. Taylor*, 513 F. Supp. 3d 1309 (M.D. Ala. 2021).

persuasive." *Id*. at 531. The required inquiry provides an enhanced measure of protection in circumstances where there is a greater danger that the legal classification results from impermissible prejudice or stereotypes. *See City of Richmond v. J.A. Croson Co.*, 488 U.S. 469, 493 (1989) (plurality opinion).

Moreover, when intermediate scrutiny applies, the "justification must be genuine, not hypothesized or invented post hoc in response to litigation," and "must not rely on overbroad generalizations." *Virginia*, 518 U.S. at 533; *see also Glenn*, 663 F.3d at 1321; *SmithKline Beecham Corp. v. Abbott Labs.*, 740 F.3d 471, 482 (9th Cir. 2014) (noting that the court must examine the law's "actual purposes and carefully consider the resulting inequality to ensure that our most fundamental institutions neither send nor reinforce messages of stigma or second-class status.") (citing *United States v. Windsor*, 570 U.S. 744 (2013)). A classification does not withstand heightened scrutiny when "the alleged objective" of the classification differs from the "actual purpose." *Mississippi Univ. for Women*, 458 U.S. at 730.

S.B. 184's ban on medically necessary gender-affirming care for transgender youth does not survive the rigorous analysis that heightened scrutiny demands for two reasons. First, the State's articulated objectives are pretextual justifications that mask the true purpose of the law: to express moral disapproval of a vulnerable and unpopular group. That desire is not legitimate, let alone important or

exceedingly persuasive. Second, even assuming the State's asserted interest of protecting children is genuine, S.B. 184 is not substantially related to that interest because S.B. 184's ban on various forms of gender-affirming care is harmful, not beneficial, to children.

1. Alabama's Stated Interest of Protecting Children is Pretextual

S.B. 184's stated purpose is to protect youth. The legislation's text and its legislative history, however, belie the State's stated purpose. "[I]f the constitutional conception of 'equal protection of the laws' means anything, it must at the very least mean" that the desire to express moral disapproval of "a politically unpopular group cannot constitute a legitimate governmental interest." *Dep't of Agriculture v. Moreno*, 413 U.S. 528, 534 (1973); *see also Palmore v. Sidoti*, 466 U.S. 429, 433 (1984). Unfortunately, S.B. 184's real purpose is that forbidden desire.

The text and legislative history of S.B. 184 are marbled with expressions of moral disapproval of transgender status. So, too, its suggestion that transgender minors will "outgrow" their gender identity. S.B. 184, § 2(4).

Furthermore, S.B. 184's legislative history, including statements from Governor Ivey and co-sponsor Representative Allen, *see* pp. 7-8, *supra*, reflect profound disapproval of people whose gender identity is inconsistent with the sex they were assigned at birth.

S.B. 184 bans particular treatments and procedures only when they are being

used to affirm a gender identity that is "inconsistent with the minor's sex" as assigned at birth. S.B. 184, § 4. As such, S.B. 184 singles out transgender minors for discriminatory treatment. Those same procedures that S.B. 184 prohibits for transgender minors, remain as permissible as before for all other purposes, including gender-affirming care for anyone who is not transgender. Puberty blockers and surgical treatments can have "life implications," S.B. 184, § 2(15), for cisgender and intersex minors too, and yet Alabama leaves the decisions whether to obtain such treatments to treating physicians, parents, and minors. The law's selective concern undercuts the state's profession of a legitimate purpose. *See Church of the Lukumi Babalu Aye, Inc. v. City of Hialeah*, 508 U.S. 520, 547 (1993) (a state undermines its stated interest "when it leaves appreciable damage to that supposedly vital interest unprohibited.") (cleaned up).

2. S.B. 184 is Not Substantially Related to Protecting Children from "Harmful" Effects of Gender-Affirming Care

But even if the State's asserted interest of protecting children were genuine, S.B. 184's felony ban on certain forms of gender-affirming care would violate the Equal Protection Clause because the ban is not "substantially related" to achieving that objective. *Virginia*, 518 U.S. at 533 (quoting *Mississippi Univ. for Women*, 458 U.S. at 724) (internal quotations omitted). Quite the opposite: banning the forms of gender-affirming care criminalized by S.B. 184 will have devastating effects on many transgender youths while providing no countervailing benefit to

them or anyone else. *See Kirchberg v. Feenstra*, 609 F.2d 727, 734 (5th Cir. 1979) (courts must "weigh[] the state interest sought to be furthered against the character of the discrimination caused by the statutory classification").

The empirical propositions upon which S.B. 184 rests are in fact untrue.

First, gender-affirming care for gender dysphoria is safe and effective. Contrary to the State's assertion that gender-affirming care for transgender youth has "numerous harmful effects," *see* S.B. 184 § 11, the overwhelming weight of medical evidence confirms that the medical care that S.B. 184 forbids is safe, effective, and medically necessary treatment for the health and wellbeing of children and adolescents suffering from gender dysphoria. Antommaria Decl. ¶¶ 34-35; Rosenthal Decl. ¶¶ 23, 27-30; *see generally* pp. 4, 21-22, *supra*.[20] Moreover, delaying or denying gender-affirming care to transgender youth experiencing gender dysphoria can result in numerous harms, including depression, anxiety, and suicidality. *See* Hawkins Decl. ¶¶ 41, 45-46.[21] The medical evidence shows that trying to "cure" a transgender individual with a gender dysphoria diagnosis by forcing them to live in alignment with their sex assigned at birth, and

[20] Rafferty, *supra* note 2.
[21] *See* Dep't of Health & Human Servs., Office of Population Affairs, *Gender Affirming Care and Young People*, at 1, https://go.usa.gov/xuR8E ("Medical and psychosocial gender affirming healthcare practices have been demonstrated to yield lower rates of adverse mental health outcomes, build self-esteem, and improve overall quality of life for transgender and gender diverse youth.").

not their gender identity, is severely harmful and ineffective. *See* Antommaria Decl. ¶ 47; Rosenthal Decl. ¶ 22.

Second, the medical research supporting gender-affirming care is substantial. Alabama is simply mistaken when it asserts that gender-affirming medical treatment for patients experiencing gender dysphoria is new, unproven, and poorly studied. *See* S.B. 184 § 2(11). To the contrary. Antommaria Decl. ¶ 23. Leading medical associations, including the American Psychiatric Association, the World Professional Association for Transgender Health, the American Academy of Pediatrics, and the Endocrine Society, have all recognized that gender-affirming care is safe, effective, and medically necessary treatment for the health and wellbeing of some children and adolescents suffering from gender dysphoria. *Id.* ¶ 35. Hormone treatment for gender dysphoria began soon after estrogen and testosterone became commercially available in the 1930s and puberty blockers have been in use for over 20 years. *Id*. ¶ 23.

The assertions in S.B. 184's legislative findings that the use of puberty blockers for youths experiencing gender dysphoria is "experimental" and not "FDA-approved," *see* S.B. 184 § 2(7), is misleading. Antommaria Decl. ¶¶ 17, 19. There have been ample observational studies, including federally funded trials, supporting the use of puberty blockers and other gender-affirming hormone therapy for adolescents. *Id*. ¶¶ 27-29.

The safety and effectiveness of the treatments and procedures used to treat minors experiencing gender dysphoria is not undermined because there have not been randomized, placebo-based trials for those treatments and procedures. *Id*. ¶¶ 24-30. And the absence of such trials does not render them "experimental." *Id*. ¶¶ 14, 17, 23-30. In fact, such trials would be unethical because insufficient participants are likely to enroll, and investigators and participants cannot be "blind" since they would know if they were receiving the active treatment or a placebo due to changes in their bodies or the absence thereof. *Id*. ¶¶ 30-31. The lack of randomized trials is common for pediatrics. *Id*. ¶¶ 31-32. Relevant here, there is the same absence of randomized trials supporting the use of puberty blockers to treat precocious puberty (the premature initiation of puberty), *id*. ¶ 31, a practice Alabama law continues to permit. There is no medical or research basis for distinguishing the use of puberty blockers to treat precocious puberty from using them to treat gender dysphoria. *Id*. ¶¶ 3, 47.

Likewise, lack of FDA approval for a specific use does not bear on a treatment's efficacy. FDA approval is not required for all uses of a medication and off-label use is in fact common in many areas of medicine, including pediatrics. *Id*. ¶¶ 20, 22. Once the FDA has approved a medication for one indication, thereby agreeing that it is safe (*i.e.*, its benefits outweigh its potential risks) and effective for this intended use, prescribers are generally free to prescribe it for other

indications. *Id*. ¶ 21. For example, nafcillin, an antibiotic commonly used to treat lung or joint infections, lacks a pediatric indication. *Id*. ¶ 22. There are many reasons, wholly unrelated to a drug's safety or efficacy why its manufacturer might not seek FDA approval for an additional use or patient group; it may already be approved for adults but not for minors even though studies indicate it is safe when used by both groups. *Id*. ¶¶ 20 & n.2, 21.

Third, parents and many minors are able to comprehend the risks involved. S.B. 184's legislative findings assert that minors and their parents "are unable to comprehend and fully appreciate the risk and life implications" of the treatments banned by Section 4. S.B. 184 § 2(15). This is incorrect. Antommaria Decl. ¶ 39. To begin, parental consent is required before providing gender-affirming care to minors, as it is before medical providers render treatments with comparable risks, uncertainty, and levels of evidence. *Id*. ¶ 40. For example, the evidence indicates that most adolescents with gender dysphoria "have sufficient medical decision-making capacity to make decisions regarding puberty blockers." *Id*. ¶ 41. And minors must be informed about all potential effects, including implications for fertility and options for fertility preservation, as a predicate step. *Id*. ¶ 42.

Moreover, S.B. 184 operates under the faulty presumption that parents, in consultation with their medical providers, cannot make reasoned, informed decisions about appropriate care for their children. In fact, parents "are frequently

asked to consent to medical treatments for minors with comparable risks, uncertainty, and levels of evidence." *Id*. ¶¶ 40, 47. S.B. 184's legislative findings offer no compelling reason why parents would be unable to do so only when these treatments are being provided to transgender youths.

Because the medical evidence demonstrates that S.B. 184's prohibition on transgender youth who experience gender dysphoria receiving the specified forms of care when their physicians and parents agree that such care is appropriate simply does not substantially achieve the interest of protecting children, the statute violates the Equal Protection Clause. *See Feenstra*, 609 F.2d at 734.

3. S.B. 184's Ban on Gender-Affirming Care Fails Even Rational Basis Review

Even if this Court were to apply only rational-basis review, S.B. 184's ban on gender-affirming medical care could not survive. The ban lacks even a "rational relationship between the disparity of treatment and some legitimate governmental purpose." *Heller v. Doe*, 509 U.S. 312, 320 (1993). By requiring that the "classification bear a rational relationship to an independent and legitimate legislative end," courts ensure that "classifications are not drawn for the purpose of disadvantaging the group burdened by the law." *Romer v. Evans*, 517 U.S. 620, 633 (1996).

As explained above, *see* pp. 18-19, *supra*, S.B. 184 in fact reflects a desire to express moral disapproval of transgender status. Given the law's targeting of

transgender minors, its passage indeed "seems inexplicable by anything but animus toward" transgender people. *See id.* S.B. 184 is "a status-based enactment divorced from any factual context from which we could discern a relationship to legitimate state interests . . . ." *Romer*, 517 U.S. at 635. "[I]f the constitutional conception of 'equal protection of the laws' means anything, it must at the very least mean" that the desire to express moral disapproval of "a politically unpopular group cannot constitute a legitimate governmental interest." *Moreno*, 413 U.S. at 534. S.B. 184 is motivated by prejudice toward a particular group, transgender individuals, bearing no rational relationship to the law's stated purpose and thus cannot survive even the lowest level of review. *See Cleburne*, 473 U.S. at 450.

Thus, the United States is likely to succeed on the merits of its equal protection claim regardless of the level of scrutiny applied.

II. S.B. 184 Will Cause Irreparable Harm Absent an Injunction

If Section 4 of S.B. 184 is permitted to go into effect, the provision of certain types of medically necessary gender-affirming care to transgender minors will constitute a felony, punishable by up to 10 years in prison and a fine of up to $15,000. S.B. 184 § 4(c); *see also* Ala. Crim. Code §§ 13-A-5-6(a)(3), 13A-5-11(a)(3). Courts have repeatedly recognized that the risk of criminal penalties constitutes an immediate and irreparable harm. *See, e.g.*, *Georgia Latino All. for Hum. Rts. v. Deal*, 793 F. Supp. 2d 1317, 1340 (N.D. Ga. 2011), *aff'd in relevant*

part, *Georgia Latino All. for Hum. Rts. v. Governor of Georgia*, 691 F.3d 1250 (11th Cir. 2012); *Planned Parenthood Southeast, Inc. v. Bentley*, 951 F. Supp. 2d 1280, 1288-89 (N.D. Ala. 2013); *Cent. Alabama Fair Hous. Ctr. v. Magee*, No. 2:11-cv-982-MHT, 2011 WL 5878363, at *3 (M.D. Ala. Nov. 23, 2011).

That is especially true given the court of action S.B. 184 compels individuals to forgo. S.B. 184 will cause immense and irreparable physical and psychological harm to many transgender minors by terminating their access to necessary medical treatment and impose severe harm on their parents and medical providers. *See* Antommaria Decl. ¶ 47; Hawkins Decl. ¶¶ 45-47; Rosenthal Decl. ¶¶ 56-57. As one district court explained, the following forms of irreparable harm can ensue: (1) transgender youths face "high risk of gender dysphoria and lifelong physical and emotional pain," (2) parents must choose between watching their children suffer or uprooting their familiar to move to another state, and (3) physicians must choose between breaking the law and providing appropriate medical care. *Brandt v. Rutledge*, 551 F. Supp. 3d 882, 892 (E.D. Ark. 2021); *see also Blaine v. North Brevard County Hospital District*, 312 F. Supp. 3d 1295, 1306 (M.D. Fla. 2018).[22]

[22] The Supreme Court and other courts have held that irreparable harm results from the enforcement of a state law that violates the Constitution. *See New Orleans Pub. Serv., Inc. v. Council of City of New Orleans*, 491 U.S. 350, 366-67 (1989) (assuming that irreparable injury may be established "by a showing that the challenged state statute is flagrantly and patently violative of . . . the express constitutional prescription of the Supremacy Clause") (citation and internal quotation marks omitted); *United States v. Arizona*, 641 F.3d 339, 366 (9th Cir. 2011) ("We have 'stated that an alleged constitutional infringement will often alone constitute

III. The Balance of the Equities and the Public Interest Both Weigh in the United States' Favor

The final two factors governing the issuance of preliminary relief—the balance of equities and the public interest—merge where the federal government is a party. *Nken v. Holder*, 556 U.S. 418, 435 (2009); *see also Pursuing Am.'s Greatness v. Fed. Election Comm'n*, 831 F.3d 500, 511 (D.C. Cir. 2016) (Government's "harm and the public interest are one and the same, because the government's interest is the public interest"). Here, these factors manifestly favor the United States. The United States has a strong and legitimate interest in ensuring that states respect their obligations under the Constitution, and in fulfilling the United States' responsibilities under Federal law.[23] If this Court does not grant preliminary relief, the lives of many transgender youth in Alabama and their families will be upended while the court continues to evaluate the lawfulness of S.B. 184 during the pendency of the litigation. *See Planned Parenthood Southeast, Inc.*, 951 F. Supp. 2d at 1290.

By contrast, Alabama will suffer no harm if the preliminary relief sought by the United States is granted; as discussed above, S.B. 184 fails to protect the health of minors notwithstanding its purported motivations. *See* pp. 19-20, *supra*.

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irreparable harm.'"); *see also City of El Cenizo v. Texas*, 264 F. Supp. 3d 744, 809 (W.D. Tex. 2017).

[23] *See* Letter from Kristen Clarke, Assistant Attorney General for Civil Rights, U.S. Dep't of Justice, to State Attorneys General (March 31, 2022), https://go.usa.gov/xuR8w.

Moreover, because the United States has demonstrated that it is likely to prevail on the merits, an injunction preventing the enforcement of the unconstitutional legislation poses no harm. *Alabama*, 691 F.3d at 1301 ("Frustration of federal statutes and prerogatives are not in the public interest, and we discern no harm from the state's nonenforcement of invalid legislation."); *KH Outdoor, LLC v. City of Trussville*, 458 F.3d 1261, 1271-72 (11th Cir. 2006) ("the city has no legitimate interest in enforcing an unconstitutional ordinance."). In sum, the balance of the equities and the public interest weigh in the United States' favor.

CONCLUSION

For the foregoing reasons, the Court should grant the United States' motion for a temporary restraining order and a preliminary injunction.

Dated: April 29, 2022

Respectfully submitted,

SANDRA J. STEWART
United States Attorney
Middle District of Alabama

PRIM F. ESCALONA
United States Attorney
Northern District of Alabama

LANE H. WOODKE
Chief, Civil Division
Northern District of Alabama

JASON R. CHEEK
Deputy Chief, Civil Division
U.S. Attorney's Office
Northern District of Alabama

KRISTEN CLARKE
Assistant Attorney General
Civil Rights Division

JOHN POWERS (DC Bar No. 1024831)
Counsel to the Assistant Attorney General
Civil Rights Division

CHRISTINE STONEMAN
Chief, Federal Coordination and
Compliance Section

COTY MONTAG (DC Bar No. 498357)
Deputy Chief, Federal Coordination and
Compliance Section

1801 Fourth Avenue North
Birmingham, Alabama 35203
Tel.: (205) 244-2104
Jason.Cheek@usdoj.gov

STEPHEN D. WADSWORTH
Assistant United States Attorney
U.S. Attorney's Office
Middle District of Alabama
Post Office Box 197
Montgomery, Alabama 36101-0197
Tel.: (334) 223-7280
Stephen.Wadsworth@usdoj.gov

s/Alyssa C. Lareau
ALYSSA C. LAREAU (DC Bar No. 494881)
RENEE WILLIAMS (CA Bar No. 284855)
KAITLIN TOYAMA (CA Bar No. 318993)
Trial Attorneys
United States Department of Justice
Civil Rights Division
Federal Coordination and Compliance Section
950 Pennsylvania Avenue NW - 4CON
Washington, DC 20530
Tel.: (202) 305-2994
Alyssa.Lareau@usdoj.gov
Renee.Williams3@usdoj.gov
Kaitlin.Toyama@usdoj.gov

Attorneys for Plaintiff-Intervenor United States of America

CERTIFICATE OF SERVICE

I hereby certify that on April 29, 2022, I electronically filed the foregoing with the Clerk of the Court using the CM/ECF system, which will send notification of such filing to counsel of record, in accordance with Rules 24(c) and 5(b)(2)(E).

Respectfully submitted,

s/ *Jason R. Cheek*
Jason R. Cheek
Assistant U.S. Attorney

No. 22-11707

UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT

PAUL A. EKNES-TUCKER, et al.,
Plaintiffs-Appellees,

&

UNITED STATES OF AMERICA
Intervenor-Plaintiff-Appellee,

v.

GOVERNOR OF THE STATE OF ALABAMA, et al.,
Defendants-Appellants.

On Appeal from the United States District Court
for the Middle District of Alabama
Case No. 2:22-cv-184-LCB

APPELLANTS' APPENDIX VOLUME III OF XIII

Christopher Mills
SPERO LAW LLC
557 East Bay St.,
#22251
Charleston, SC 29451
(843) 606-0640
cmills@spero.law

Steve Marshall
Attorney General
Edmund G. LaCour Jr.
Solicitor General
A. Barrett Bowdre
Thomas A. Wilson
Deputy Solicitors General
James W. Davis
Deputy Attorney General
Benjamin M. Seiss
Assistant Attorney General
STATE OF ALABAMA
OFFICE OF THE ATTORNEY GENERAL
501 Washington Ave.
Montgomery, AL 36130
(334) 242-7300
Edmund.LaCour@AlabamaAG.gov

July 5, 2022

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EXHIBIT 1

Declaration of

Armand H. Antommaria, MD, PhD, FAAP, HEC-C

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER, et al., Plaintiffs, and UNITED STATES OF AMERICA, Plaintiff-Intervenor, v. KAY IVEY, in her official capacity as Governor of Alabama, et al. Defendants.	Case No. 2:22-cv-184-LCB-SRW

EXPERT DECLARATION OF ARMAND H. ANTOMMARIA, MD, PhD, FAAP, HEC-C

1. Counsel for the United States have retained me as an expert in connection with the above-captioned litigation.

2. 2022 Alabama Senate Bill 184 (SB 184) singles out for anomalous treatment certain medical interventions when these interventions are used for the purpose of gender transition, which I will refer to as gender-affirming medical care, criminalizing healthcare professionals who provide minors gender-affirming medical care or who refer minors for such care.

3. The legislative findings in SB 184 do not provide a sound medical or ethical basis for criminalizing the provision of gender-affirming medical care to minors with gender dysphoria nor could they because a sound medical or ethical basis for criminalizing such care does not exist.

4. I have actual knowledge of the matters stated in this declaration. In preparing this declaration, I reviewed the materials listed in the attached Bibliography (Exhibit A), as well as SB 184. I may rely on those documents as additional support for my opinions. I have also relied on my years of research and relevant experience, as set out in my curriculum vitae (Exhibit B), and on the materials listed therein. The materials I have relied upon in preparing this declaration are the same types of materials that experts in medicine and bioethics regularly rely upon when forming opinions on the subject. I may wish to supplement these opinions or the bases for them as a result of new scientific research or publications, or in response to statements and issues that may arise in my area of expertise.

BACKGROUND AND QUALIFICATIONS

5. I hold the following positions at Cincinnati Children's Hospital Medical Center: Director of the Ethics Center, Lee Ault Carter Chair of Pediatric Ethics, and Attending Physician in the Division of Hospital Medicine. I am also a

Professor in the Departments of Pediatrics and Surgery at the University of Cincinnati College of Medicine.

6. In 2000, I received both my medical degree from Washington University School of Medicine in St. Louis, Missouri and my PhD in Religious Ethics from The University of Chicago Divinity School. I completed my Pediatrics residency at the University of Utah in 2003.

7. I have been licensed to practice medicine since 2001 and am currently licensed to practice medicine in Ohio. I have been Board Certified in General Pediatrics since 2004 and in Pediatric Hospital Medicine since the inception of this certification in 2019. I have been certified as a Healthcare Ethics Consultant since the inception of this certification in 2019.

8. I have extensive experience as a practicing pediatrician. I have been in clinical practice since 2003 and approximately 30 percent of my current work is dedicated to caring for hospitalized patients.

9. I also have extensive experience as a bioethicist. Bioethicists examine the ethical issues that arise in medicine and the life sciences. I was Chair of the Ethics Committee at Primary Children's Medical Center in Salt Lake City, Utah from 2005 to 2012 and have been Director of the Ethics Center at Cincinnati Children's Hospital Medical Center since 2012. I consult on patients in the Transgender Health Clinic at Cincinnati Children's Hospital Medical Center whose

care presents unique ethical issues and participate in the Clinic's monthly multidisciplinary team meetings. I remain current with the medical and bioethics literature regarding the treatment of minors with gender dysphoria. I am also part of Cincinnati Children's Hospital Medical Center team that cares for patients born with intersex traits, also known as differences or disorders of sex development (DSD). I am also the Chair of Cincinnati Children's Hospital Medical Center Fetal Care Center's Oversight Committee, which provides the Center with recommendations regarding innovation and research.

10. I am a member of the American Academy of Pediatrics (AAP), the American Society for Bioethics and Humanities (ASBH), the Association of Bioethics Program Directors, and the Society for Pediatric Research. I was a member of the AAP's Committee on Bioethics from 2005 to 2011. I served as a member of the ASBH's Clinical Ethics Consultation Affairs Committee from 2009 to 2014 and currently serve on its Healthcare Ethics Consultant Certification Commission.

11. I am the author of 38 peer-reviewed journal articles, 11 non-peer-reviewed journal articles, 6 book chapters, and 26 commentaries. My peer-reviewed journal articles have been published in high-impact journals, including the *Journal of the American Medical Association* and *Annals of Internal Medicine.* I am also an

author of 17 policy statements and technical reports, including 4 as lead author, by the AAP.

12. I am a member of the Executive Editorial Board and the Associate Editor for Ethics Rounds of *Pediatrics*. *Peditrics* is the AAP's flagship journal and Ethics Rounds is a type of article in which commentators analyze cases that raise ethical issues. I am an active peer reviewer for many medical journals, including the *American Journal of Bioethics* and the *Journal of Pediatrics*. I also review abstracts for meetings of professional organizations, including the Pediatric Academic Societies and ABSH. I was previously a member of the editorial boards of the *Journal of Clinical Ethics* and the *Journal of Medical Humanities.*

13. I have prepared declarations as an expert witness in the following cases involving the provision of gender-affirming medical care to adolescents with gender dysphoria: *Brant v. Rutledge*, Case No. 4:21CV450-JM (E.D. Ark.), *Doe v. Abbott*, No. D-1-GN-22-000977, 2022 WL 628912 (Tex. Dist. 353rd Judicial District, March 2, 2022), and *Walker v. Marshall*, No. 2:22-cv-167-ECM-SMD (M.D. Ala.). In *Doe v. Abbott*, I testified in court as an expert witness. I am being compensated at an hourly rate of $250 per hour for preparation of expert declarations and reports, and $400 per hour for time spent preparing for or giving deposition or trial testimony. My compensation does not depend on the outcome of this litigation, the opinions I express, or the testimony I provide.

GENDER-AFFIRMING MEDICAL CARE IS CLINICAL CARE

14. The SB 184 legislative findings claim that the use of gonadotrophin releasing hormone (GnRH) agonists, colloquially known as puberty blockers, to treat gender dysphoria[1] are experimental and not approved by the U.S. Food and Drug Administration (FDA). These claims are inaccurate and irrelevant, respectively.

15. Clinical practice and research are distinguished by their goals and methods. The goal of clinical practice is to benefit individual patients, and its method is individualized decision-making. The goal of research is to contribute to generalizable knowledge, and its method uses formal protocols that describe the research study's objectives and procedures. *See* National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. *The Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research.* The Commission; 1978.

16. The clinical use of puberty blockers to treat gender dysphoria is not research or experimentation. The same is true for gender-affirming hormone treatment and mastectomies on transgender males (individuals assigned female at birth who identify as male) referred to at chest surgery. When administering these

[1] Gender dysphoria is "a marked incongruence between one's experienced/expressed gender and their assigned gender" which is "associated with clinically significant distress or impairment in social, occupational, or other important areas of functioning." American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders.* 5th ed. American Psychiatric Publishing; 2013.

treatments, clinicians seek to benefit individual patients and adjust the treatment based on individual patients' responses.

17. To the extent the legislative findings use the term "experimental" to convey an absence of evidence for gender affirming medical care, that suggestion is baseless. Gender affirming medical care is supported by clinical studies, evidence comparable to many other treatments in pediatrics, as detailed below.

18. SB 184 not only criminalizes gender-affirming medical care as clinical care, but also criminalizes the provision of these interventions as research. Such research is necessary, as it is in every area of medicine, to continue to advance treatment.

19. The suggestion that because puberty blockers and gender-affirming hormone treatment are not approved by the FDA for the treatment of gender dysphoria they are therefore experimental or unsafe is misleading. Off-label use of FDA-approved medications is legal, common, and often evidence-based.

20. FDA approval is not required for all uses of a medication. Once the FDA has approved a medication for one indication,[2] thereby agreeing that it is safe

[2] According to the FDA, an indication includes a number of factors: the particular disease or condition or the manifestion or symptoms of the disease or condition for which the drug is approved; whether the drug is approved for treatment, prevention, mitigation, cure, or diagnosis; and the population, including age group, for which the drug is safe and effective. Center for Drug Evaluation and Research and Center for Biologics Evaluation and Research, Food and Drug Administation,

(*i.e.*, its benefits outweigh its potential risks) and effective for this intended use, as is the case with the medications at issue here, prescribers are generally free to prescribe it for other indications. U.S. Food & Drug Administration. Understanding unapproved use of approved drugs "off label." February 5, 2018. Accessed March 23, 2022. https://www.fda.gov/patients/learn-about-expanded-access-and-other-treatment-options/understanding-unapproved-use-approved-drugs-label. The American Academy of Pediatrics (AAP) Committee on Drugs states, "[i]t is important to note that the term 'off-label' does not imply an improper, illegal, contraindicated, or investigational use" and "[t]he administration of an approved drug for a use that is not approved by the FDA is not considered research and does not warrant special consent or review if it is deemed to be in the individual patient's best interest."

21. The AAP Committee on Drugs further states "in no way does a lack of labeling signify that therapy is unsupported by clinical experience or data in children." Frattarelli DA, Galinkin JL, Green TP, et al. Off-label use of drugs in

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U.S. Department of Health and Human Services. Inidcations and Usage Section of Labeling for Human Prescription Drug and Biological Products—Content and Format: Guidance for Industry. July 2018. Accessed April 29, 2022. Available at https://www.fda.gov/files/drugs/published/Indications-and-Usage-Section-of-Labeling-for-Human-Prescription-Drug-and-Biological-Products-%E2%80%94-Content-and-Format-Guidance-for-Industry.pdf. A medication approved for the treatment of asthma in adults whould, for example, be prescribed off label if used to treat a different disease, like pneumonia, or a different age group, like children.

children. *Pediatrics*. 2014;133(3):563-567. Among the reasons for this is that, even if there is substantial evidence of safety and efficacy for a new indication, a sponsor may not seek FDA approval for it because doing so is not economically beneficial. Wittich CM, Burkle CM, Lanier WL. Ten common questions (and their answers) about off-label drug use. *Mayo Clin Proc*. 2012;87(10):982-990.

22. "Off-label" use of drugs is common in many areas of medicine, including pediatrics. For example, nafcillin, an antibiotic commonly used to treat children with invasive staphylococcal infections, such as lung or joint infections, lacks FDA approval in individuals under 18 years of age. *See* Nafcillin Injection, USP. February 2007. Accessed April 5, 2022. Available at https://www.accessdata.fda.gov/drugsatfda_docs/label/2008/050655s017lbl.pdf. A recent study of children's hospitals found that in 28.1% of encounters, at least one off-label drug was prescribed. *See* Yackey K, Stukus K, Cohen D, Kline D, Zhao S, Stanley R. Off-label medication prescribing patterns in pediatrics: An update. *Hosp Pediatr*. 2019;9(3):186-193. Examples of medications used off-label in this study included: albuterol, which is used to treat asthma; morphine, which is used to treat pain; and lansoprazole (Prevacid®), which is used to treat gastrointestinal reflux. The rate of off-label use may be significantly higher in certain age groups, categories of drugs, and clinical settings.

THE SAFETY AND EFFICACY OF GENDER-AFFIRMING MEDICAL CARE IS SUPPORTED BY EVIDENCE

23. The SB 184 legislative findings also incorrectly characterize gender-affirming medical treatment as new, unproven, and poorly studied. Gender-affirming medical care is not new. Hormone treatment for gender dysphoria began soon after estrogen and testosterone became commercially available in the 1930's. Stryker S. *Transgender History*. 2nd ed. Seal Press; 2017. The use of puberty blockers to treat gender dysphoria in adolescents, while more recent, is not new. The first reference to this treatment in the medical literature was in 1998, over twenty years ago. Cohen-Kettenis PT, van Goozen SH. Pubertal delay as an aid in diagnosis and treatment of a transsexual adolescent. *Eur Child Adolesc Psychiatry*. 1998;7(4):246-248. Prospective observational trials of puberty blockers began recruiting participants in 2000. de Vries AL, Steensma TD, Doreleijers TA, Cohen-Kettenis PT. Puberty suppression in adolescents with gender identity disorder: A prospective follow-up study. *J Sex Med*. 2011;8(8):2276-2283

24. Gender-affirming medical care of adolescents with gender dysphoria is also neither poorly studied nor unproven. The major categories of studies used to evaluate innovative treatments are observational studies, which include cross-sectional and longitudinal studies, and randomized trials. In cross-sectional studies, investigators collect data at a single point in time. Cross-sectional design permits investigators to examine potential associations between factors, but it cannot prove

one factor caused the other. In longitudinal studies, researchers follow individuals over time, making continuous or repeated measures. In a randomized trial, participants are randomly assigned to a treatment or a comparison group. Neither the investigators nor the participants know to which group the participant is assigned. The major benefit of a randomized trial is that it decreases the likelihood that any differences in the outcomes between the groups is the result of baseline differences between the groups rather than the result of the intervention. Guyatt G, Rennie D, Meade MO, et al., eds. *Users' Guide to the Medical Literature: A Manual for Evidence-Based Clinical Practice*. 3rd ed. McGraw Hill Education; 2015; Perry-Parrish C, Dodge R. Research and statistics: Validity hierarchy for study design and study type. *Pediatr Rev*. 2010;31(1):27-29.

25. While randomized controlled trials are described in the medical literature as "high quality" evidence and observational studies as "low quality" evidence, randomized controlled trials may not be feasible or ethical, may have intrinsic methodological limitations, or may be unavailable in some contexts. "Low quality" evidence can be sufficient to justify treatment recommendations. *See* Swiglo BA, Murad MH, Schunemann HJ, et al. A case for clarity, consistency, and helpfulness: State-of-the-art clinical practice guidelines in endocrinology using the Grading of Recommendations, Assessment, Development, and Evaluation System. *J Clin Endocrinol Metab*. 2008;93(3):666-673. For example, the Endocrine Society

recommends that "clinicians prescribe and support the reduction of inactivity and also a minimum of 20 minutes of moderate to vigorous physical activity daily, with a goal of 60 minutes, all in the context of a calorie-controlled diet" to treat obesity. This recommendation is based on "low quality" evidence. Styne DM, Arslanian SA, Connor EL, et al. Pediatric obesity-assessment, treatment, and prevention: An Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab*. 2017;102(3):709-757.

26. It may, at times, be unethical to conduct randomized trials. For randomized trials to be ethical, clinical equipoise must exist; that is, there must be uncertainty about whether the efficacy of the intervention or the control is greater. It would be unethical to knowingly expose some trial participants to an inferior intervention. Trials must also be feasible. It would be unethical to expose individuals to the risks of trial participation without the benefit of the trial generating generalizable knowledge. A randomized trial that is unlikely to find enough people to participate because they believe they might be randomized to an inferior intervention would be unethical because it could not generate generalizable knowledge due to an inadequate sample size. *See* Emanuel EJ, Wendler D, Grady C. What makes clinical research ethical? *JAMA*. 2000;283(20):2701-2711.

27. The use of puberty blockers to treat gender dysphoria is supported by prospective observational trials including: Delemarre-van de Waal HA, Cohen-

Kettenis PT. Clinical management of gender identity disorder in adolescents: A protocol on psychological and pediatric endocrinology aspects. *Eur J Endocrinol.* 2006;155(suppl 1):S131–S137; de Vries AL, Steensma TD, Doreleijers TA, Cohen-Kettenis PT. Puberty suppression in adolescents with gender identity disorder: A prospective follow-up study. *J Sex Med*. 2011;8(8):2276-2283; and de Vries AL, McGuire JK, Steensma TD, Wagenaar EC, Doreleijers TA, Cohen-Kettenis PT. Young adult psychological outcome after puberty suppression and gender reassignment. *Pediatrics*. 2014;134(4):696-704.

28. Gender-affirming hormone therapy to treat gender dysphoria is also supported by prospective observational trails. These trials include de Vries AL, McGuire JK, Steensma TD, Wagenaar EC, Doreleijers TA, Cohen-Kettenis PT. Young adult psychological outcome after puberty suppression and gender reassignment. Pediatrics. 2014;134(4):696-704.

29. There are also ongoing federally funded prospective observational trials of gender-affirming healthcare for adolescents with gender dysphoria in the U.S., trials that SB 184 would criminalize in Alabama. *See* National Institutes of Health RePORTER, The impact of early medical treatment in transgender youth. Accessed January 21, 2022. https://reporter.nih.gov/search/lGJnh68uokiic97N2X00kA/project-details/8965408; Olson-Kennedy J, Chan YM, Garofalo R, et al. Impact of early

medical treatment for transgender youth: Protocol for the longitudinal, observational trans youth care study. *JMIR Res Protoc*. 2019;8(7):e14434.

30. Under the applicable ethical standards, randomized, placebo-controlled trials (trials that compare pharmacological treatment to no pharmacological treatment) in gender dysphoria are currently unethical. Potential investigators do not have equipoise between pharmacological treatment and no pharmacological treatment; they believe that pharmacological treatment is superior. It is also highly unlikely that enough participants would enroll in randomized controlled trials for them to be informative. *See* Chew D, Anderson J, Williams K, May T, Pang K. Hormonal treatment in young people with gender dysphoria: A systematic review. *Pediatrics*. 2018;141(4):e20173742; Reisner SL, Deutsch MB, Bhasin S, et al. Advancing methods for US transgender health research. *Curr Opin Endocrinol Diabetes Obes*. 2016;23(2):198-207.

31. Even if randomized, placebo-controlled trials of gender-affirming health care were ethical, they would provide a lower quality of evidence because of intrinsic limitations in their design. For example, it would be impossible to "blind" the investigators or the participants to whether the participants were receiving the active treatment or a placebo. They would know if they were in the intervention or control arm of the study due to the physical changes in their bodies, or the lack thereof, over time. This might bias their perception of the outcomes. Atkins D, Best

D, Briss PA, et al. Grading quality of evidence and strength of recommendations. *BMJ*. 2004;328(7454):1490.

32. In the field of pediatrics, parents and their children often must make decisions about medical care without the benefit of randomized trials. Clinical research focusing on children is less likely to use randomized trials than is clinical research for adults. Reasons for this disparity include the low prevalence of childhood disease or conditions, small market share for therapeutic agents in children, low level of National Institutes of Health funding, and difficulty enrolling children in research. *See* Martinez-Castaldi C, Silverstein M, Baucher H. Child versus adult research: The gap in high-quality study design. *Pediatrics*. 2008;122(1):52-57.

33. One directly relevant example of a widely accepted treatment based on prospective observational trials is the use of puberty blockers to treat central precocious puberty. Central precocious puberty is the premature initiation of puberty, before age 8 in people assigned female at birth and before age 9 in people assigned male, by the central nervous system. Its negative effects include impairment of final adult height as well as antisocial behavior and lower academic achievement. There are no randomized trials evaluating the adult height of treated and untreated individuals. Most studies are observational and compare pretreatment predicted and actual final height. These studies have additional limitations including

small sample sizes. This "low quality" evidence is nonetheless sufficiently strong to support the use of GnRH agonists as the standard of care for treatment of central precocious puberty. *See* Mul D, Hughes IA. The use of GnRH agonists in precocious puberty. *Eur J Endocrinol*. 2008;159(Suppl 1):S3-8.

34. Professional medical organizations develop evidence-based clinical practice guidelines to provide clinicians with helpful, evidence-based recommendations and improve patient care and outcomes. Organizations develop guidelines using systematic processes to select and review scientific evidence. Guidelines typically rate the quality of the evidence and grade the strength of recommendations. American Academy of Pediatrics Steering Committee on Quality Improvement and Management. Classifying recommendations for clinical practice guidelines. *Pediatrics*. 2004;114(3):874-877; Atkins D, Best D, Briss PA, et al. Grading quality of evidence and strength of recommendations, *BMJ*. 2004;328(7454):1490.

35. The Endocrine Society, an international medical organization of over 18,000 endocrinology researchers and clinicians, has published a clinical practice guideline for the treatment of gender-dysphoric (GD)/gender-incongruent persons, which may include pubertal suppression, gender-affirming hormone therapy, and gender-affirming surgery. The guideline both rates the quality of the supporting evidence and grades the strength of its recommendations. It recommends both the

use of puberty blockers and gender-affirming hormone therapy to treat gender dysphoria in adolescents based on the best available evidence. The guideline recommends delaying gender-affirming genital surgery that removes the testicles, ovaries, and/or uterus until adulthood. *See* Hembree WC, Cohen-Kettenis PT, Gooren L, et al. Endocrine treatment of gender-dysphoric/gender-incongruent persons: An Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab*. 2017;102(11):3869-3903; *see also* World Professional Organization for Transgender Health. *Standards of Care for the Health of Transsexual, Transgender, and Gender-Nonconforming People*, Version 7. World Professional Association for Transgender Health (WPATH); 2012.

36. Recommendations for pediatric care made by professional associations in guidelines are seldom based on well-designed and conducted randomized controlled trials due to their rarity and are frequently based on observational studies or, if such studies are unavailable, expert opinion. The medical use of the term "expert opinion" in this context differs from what I understand to be the use of this term in legal contexts. It refers to the consensus of experts in the field when studies are not available.

37. For example, none of the Endocrine Society's 84 recommendations in two of its other guidelines that focus on the pediatric population—guidelines on pediatric obesity and congenital adrenal hyperplasia—is based on "high quality"

evidence. Twenty-four (29%) of the recommendations are based on "moderate," and 49 (58%) on "low" or "very low quality" evidence. The remaining recommendations (11, 13%) are Ungraded Good Practice Statements. Table 1 (Exhibit C). See Speiser PW, Arlt W, Auchus RJ, et al. Congenital adrenal hyperplasia due to steroid 21-hydroxylase deficiency: An Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab*. 2018;103(11):4043-88; Styne DM, Arslanian SA, Connor EL, et al. Pediatric obesity-assessment, treatment, and prevention: An Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab*. 2017;102(3):709-757.

38. Guidelines issued by other professional associations concerning pediatric medical care are similar. For example, of the 130 recommendations in the American Heart Association's guideline for Pediatric Basic and Advanced Life Support, only 1 (1%) is based on "high-quality evidence from more than 1 [randomized clinical trial]" and 3 (3%) on "moderate-quality evidence from 1 or more [randomized clinical trials]." The remainder of the recommendations were based on lower quality evidence. Topjian AA, Raymond TT, Atkins D, et al. Part 4: Pediatric basic and advanced life support: 2020 American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care. *Circulation*. 2020;142(16_suppl_2):S469-S523. As reflected in medical professional associations' guidelines, medical treatment in pediatrics is infrequently

based on "high" quality evidence and commonly based on lower quality evidence, including observational studies.

PARENTS AND LEGAL GUARDIANS ARE CAPABLE OF PROVIDING INFORMED CONSENT FOR GENDER-AFFIRMING MEDICAL CARE

39. SB 184 also incorrectly asserts that minors and their parents are unable to comprehend and fully appreciate the risks and life implications of gender-affirming health care.

40. First and foremost, parents or legal guardians generally must provide informed consent for medical treatment for minors, including gender-affirming medical care. There is no evidence cited in support of the assertion that parents of adolescents with gender dysphoria are unable to comprehend and fully appreciate the implications of gender-affirming medical care. Parents or legal guardians are frequently asked to consent to medical treatments for minors with comparable risks, uncertainty, or levels of evidence. Limitations in adults' ability to predict what will contribute to satisfaction in the future, called affective forecasting, is not unique to decisions regarding gender-affirming medical care. And there are approaches healthcare providers use to improve affective forecasting. Wilson TD, Gilbert DT. Affective forecasting: Knowing what to want. *Curr Dir Psychol Sci.* 2005;14(3):131-134; Halpern J, Arnold RM. Affective forecasting: An unrecognized challenge in making serious health decisions. *J Gen Intern Med*. 2008;23(10):1708-1712.

41. Adolescents generally possess comparable medical decision-making capacity to adults. Louis A. Weithorn and Susan B. Campbell, for example, found that 14-year-olds performed similarly to adults with respect to their ability to understand and reason about treatment information. Weithorn LA, Campbell SB. The competency of children and adolescents to make informed treatment decisions. *Child Dev*. 1982;53(6):1589-1598. There is evidence that most adolescents with gender dysphoria have sufficient medical decision-making capacity to make decisions regarding puberty blockers. Vrouenraets L, de Vries ALC, de Vries MC, van der Miesen AIR, Hein IM. Assessing medical decision-making competence in transgender youth. *Pediatrics*. 2021;148(6): e2020049643. Similar to the aforementioned approaches to improve adult's affective forecasting, there are steps that healthcare providers take to promote adolescents' decision-making capacity. Katz AL, Webb SA, Committee on Bioethics. Informed consent in decision-making in pediatric practice. *Pediatrics*. 2016;138(2):e20161485.

42. The current standard of care for treating gender dysphoria in minors is consistent with general ethical principles instantiated in the practices of informed consent and shared decision-making. The Endocrine Society clinical practice guideline extensively discusses the potential benefits, risks, and alternatives to gender-affirming medical care, and its recommendations regarding the timing of interventions are based in part on the treatment's potential risks and the adolescent's

decision-making capacity. The guideline recommends that informed consent for pubertal blockers and gender-affirming hormones include a discussion of the implications for fertility and options for fertility preservation. The Endocrine Society clinical guideline also advises delaying gender-affirming hormone treatment, which results in partly irreversible physical changes until an adolescent has has developed sufficient medical decision-making capacity. The guideline states clinicians should individualize decision-making for breast or chest surgery in transgender males and that chest surgery may be considered in individuals under 18 years old. *See* Hembree WC, Cohen-Kettenis PT, Gooren L, et al. Endocrine treatment of gender-dysphoric/gender-incongruent persons: An Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab*. 2017;102(11):3869-3903.

SB 184 SINGLES OUT GENDER-AFFIRMING MEDICAL CARE FOR ANOMALOUS TREATMENT

43. SB 184's legislative findings do not provide a sufficient basis for criminalizing and singling out for anamolous treatment the provision of gender-affirming healthcare to adolescents with gender dysphoria. For example, as previously mentioned, SB 184 permits the use of puberty blockers to treat central precocious puberty, but criminalizes the use of puberty blockers to treat gender dysphoria, even though using puberty blockers in connection with both conditions has comparable risks and is supported by comparable types of evidence.

44. Additionally, while SB 184 would prohibit chest surgery on transgender males, minors are permitted to undergo many comparable surgeries, such as those for gynecomastia, pectus excavatum or carinatum, and breast reconstruction. Gynecomastia is the proliferation of ductal or glandular breast tissue, as opposed to adipose tissue or fat, in individuals whose sex assigned at birth is male. Pectus excavatum and carinatum are chest wall anomalies in which the sternum is depressed or protrudes, respectively. While surgeries to treat these conditions, as well as breast reduction and augmentation for individuals whose sex assigned at birth and gender identity are female, may at times be performed to lessen physical symptoms, such as pain or exercise intolerance, they are commonly performed to reduce psychosocial distress. Gynecomastia and breast augmentation surgery affirm patients' gender identity, that is, to respectively help someone assigned male at birth feel more typically masculine and someone assigned female at birth feel more typically feminine. Risks of these procedures include bleeding, infection, scarring and poor cosmetic outcome, loss of sensation, and impaired breast/chest feeding. Some surgeries have unique risks such as catastrophic perforations of the heart or lungs in some forms of pectus repair, or capsule formation around a breast implant causing hardening and pain. *See* Buziashvili D, Gopman JM, Weissler H, et al. An evidence-based approach to management of pectus excavatum and carinatum. *Ann Plast Surg.* 2019;82(3):352-358; Nordt CA,

DiVasta AD. Gynecomastia in adolescents. *Curr Opin Pediatr*. 2008;20(4):375-382; Zuckerman D, Abraham A. Teenagers and cosmetic surgery: Focus on breast augmentation and liposuction. *J Adolesc Health*. 2008;43(4):318-324.

45. As these examples of chest surgeries in adolescents illustrate, surgeries for minors can require weighing short- and long-term effects, benefits, and risks in the face of uncertainty. Individual needs shape these evaluations and, therefore, the adolescents' participation is essential. There is nothing unique about chest surgery for gender dysphoria that justifies singling out this and other medical treatments for gender dysphoria for a criminal prohibition based on a concern for adolescents' inability to assent or parents or guardians' inability to consent. As with other medical decisions for adolescents, medical decisions regarding treatment for gender dysphoria should continue to be left to the discretion of transgender adolescents, their parents or guardians, and their healthcare providers.

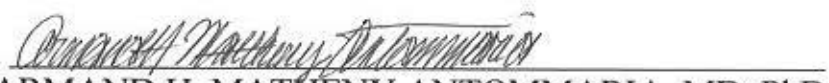
46. Ironically, while SB 184 criminalizes gender-affirming medical care for youth with gender dysphoria in the name of protecting vulnerable children, the statute expressly allows doctors to perform irreversible surgeries on infants and children with intersex conditions or differences or disorders of sex development (DSD) at ages when they are unable to meaningfully participate in medical decision making. Such surgeries are highly controversial when performed at such an early age and can result in life-long complications and side effects. *See* Frader J, Alderson

P, Asch A, et al. Health care professionals and intersex conditions, *Arch Pediatr Adolesc Med*. 2004;158(5):426-428.

CONCLUSIONS

47. The Endocrine Society's recommendations for treating adolescents with gender dysphoria with pubertal suppression, gender-affirming hormones, and chest surgery are well within the range of other decisions that adolescents and their parents or guardians in Alabama have the discretion to make. Based on my research and experience as a pediatrician and bioethicist, there is no sound medical or ethical basis to criminalize this care. Doing so puts clinicians in the untenable position of having to either follow state law and knowingly harm their patients, or face penalties including imprisonment and loss of their medical licenses.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed: April 29, 2022 

ARMAND H. MATHENY ANTOMMARIA, MD, PhD

EXHIBIT A

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EXHIBIT B

Curriculum Vitae

Last Updated: March 22, 2022

PERSONAL DATA

Armand H. Matheny Antommaria, MD, PhD, FAAP, HEC-C
Birth Place: Pittsburgh, Pennsylvania
Citizenship: United States of America

CONTACT INFORMATION

Address: 3333 Burnet Ave, ML 15006, Cincinnati, OH 45229
Telephone Number: (513) 636-4939
Electronic Mail Address: armand.antommaria@cchmc.org

EDUCATION

1983-1987	BSEE	Valparaiso University, with High Distinction Valparaiso, IN
1983-1987	BS	Valparaiso University (Chemistry), with High Distinction Valparaiso, IN
1987-1989	MD	Washington University School of Medicine
1998-2000		Saint Louis, MO
1989-2000	PhD	The University of Chicago Divinity School (Religious Ethics) Chicago, IL
2000-2003	Resident	University of Utah (Pediatrics) Salt Lake City, UT
2005-2006	Certificate	Conflict Resolution Certificate Program, University of Utah Salt Lake City, UT

BOARD CERTIFICATION

2019 Pediatric Hospital Medicine, American Board of Pediatrics
2019 Healthcare Ethics Consultant-Certified, Healthcare Ethics Consultation Certification Commission
2004 General Pediatrics, American Board of Pediatrics

PROFESSIONAL LICENSES

2012-Present	Doctor of Medicine, Ohio
2006-2010	Alternative Dispute Resolution Provider—Mediator, Utah
2001-2014	Physician and Surgeon, Utah
2001-2014	Physician and Surgeon Controlled Substance, Utah

PROFESSIONAL EXPERIENCE

Full Time Positions

2019-Present	*Professor* Cincinnati Children's Hospital Medical Center, Cincinnati, OH Department of Surgery
2019-Present	*Professor of Clinical-Affiliated* University of Cincinnati, Cincinnati, OH Department of Surgery
2017-Present	*Professor* Cincinnati Children's Hospital Medical Center, Cincinnati, OH

	Division of Pediatric Hospital Medicine
2017-Present	*Professor of Clinical-Affiliated*
	University of Cincinnati, Cincinnati, OH
	Department of Pediatrics
2016-2017	*Associate Professor of Clinical-Affiliated*
	University of Cincinnati, Cincinnati, OH
	Department of Pediatrics
2012-2017	*Associate Professor*
	Cincinnati Children's Hospital Medical Center, Cincinnati, OH
	Division of Pediatric Hospital Medicine
2012-Present	*Lee Ault Carter Chair in Pediatric Ethics*
	Cincinnati Children's Hospital Medical Center
2012-2016	*Associate Professor-Affiliated*
	University of Cincinnati, Cincinnati, OH
	Department of Pediatrics
2010-2012	*Associate Professor of Pediatrics* (with Tenure)
	University of Utah School of Medicine, Salt Lake City, UT
	Divisions of Inpatient Medicine and Medical Ethics
2010-2012	*Adjunct Associate Professor of Medicine*
	University of Utah School of Medicine, Salt Lake City, UT
	Division of Medical Ethics and Humanities
2004-2010	*Assistant Professor of Pediatrics* (Tenure Track)
	University of Utah School of Medicine, Salt Lake City, UT
	Divisions of Inpatient Medicine and Medical Ethics
2004-2010	*Adjunct Assistant Professor of Medicine*
	University of Utah School of Medicine, Salt Lake City, UT
	Division of Medical Ethics and Humanities
2003-2004	*Instructor of Pediatrics* (Clinical Track)
	University of Utah School of Medicine, Salt Lake City, UT
	Divisions of Inpatient Medicine and Medical Ethics
2003-2004	*Adjunct Instructor of Medicine*
	University of Utah School of Medicine, Salt Lake City, UT
	Division of Medical Ethics

Part Time Positions

2021	*Consultant*
	Proctor & Gamble, Cincinnati, OH
2019	*Consultant*
	Sanofi Genzyme, Cambridge, MA
2018-Present	*Consultant*
	Center for Conflict Resolution in Healthcare, Memphis, TN
2017-2020	*Consultant*
	Amicus Therapeutics, Cranbury, NJ

2017	*Expert Witness* Robert J. Klickovich, MD, PLLC v. Tristate Arthritis & Rheumatology, PSC, *et al.,* Commonwealth of Kentucky, Boone Circuit Court, Division III, Civil Action No. 16-CI-01690
2017	*Consultant* Sarepta Therapeutics, Cambridge, MA
2014	*Consultant* Genzyme, A Sanofi Company, Cambridge, MA

Editorial Experience

Editorial Board

2020-Present	*Pediatrics,* Associate Editor for Ethics Rounds and Member of the Executive Editorial Board
2015-2020	*Journal of Clinical Ethics*
2009-2020	*Journal of Medical Humanities*

Guest Academic Editor

2017	*PLOS|ONE*

Ad Hoc Reviewer: *Academic Medicine, Academic Pediatrics, AJOB Primary Research, American Journal of Bioethics, American Journal of Law & Medicine, American Journal of Medical Genetics, American Journal of Transplantation, BMC Medical Ethics, BMJ Open, Canadian Journal of Bioethics, CHEST, Clinical Transplantation, European Journal of Human Genetics, Frontiers in Genetics, Hospital Medicine, International Journal of Health Policy and Management, International Journal of Nursing Studies, Journal of Adolescent and Young Adult Oncology, Journal of Clinical Ethics, Journal of Empirical Research on Human Research Ethics, Journal of General Internal Medicine, Journal of Healthcare Leadership, Journal of Hospital Medicine, Journal of the Kennedy Institute of Ethics, Journal of Law, Medicine & Ethics, Journal of Medical Ethics, Journal of Medical Humanities, Journal of Medicine and Life, Journal of Palliative Care, Journal of Pediatrics, Journal of Pediatric Surgery, Mayo Clinic Proceedings, Medicine, Healthcare and Philosophy, Molecular Diagnosis & Therapy, New England Journal of Medicine, Patient Preference and Adherence, Pediatrics, Pediatrics in Review, Personalized Medicine, PLOS\|ONE, Risk Management and Healthcare Policy, Saudi Medical Journal, SSM - Qualitative Research in Health,* and *Theoretical Medicine and Bioethics*

SCHOLASTIC AND PROFESSIONAL HONORS

2021	*Hidden Gem Award,* Cincinnati Children's Hospital Medical Center, Cincinnati, OH
2019-2021	*Presidential Citation,* American Society for Bioethics and Humanities, Chicago, IL
2016	*Laura Mirkinson, MD, FAAP Lecturer,* Section on Hospital Medicine, American Academy of Pediatrics, Elk Grove Village, IL
2016, 2018	*Certificate of Excellence*, American Society for Bioethics and Humanities, Glenview, IL
2013, 2016	*Senior Resident Division Teaching Award,* Cincinnati Children's Hospital Medical Center, Cincinnati, OH
2012	*Role Model*, Quality Review Committee, Primary Children's Medical Center, Salt Lake City, UT
2011	*Member*, Society for Pediatric Research, The Woodlands, TX
2011	*Presidential Citation*, American Society for Bioethics and Humanities, Glenview, IL
2009	*Role Model*, Quality Review Committee, Primary Children's Medical Center, Salt Lake City, UT
2008	*Nominee,* Physician of the Year, Primary Children's Medical Center, Salt Lake City, UT
2005-2006	*Fellow,* Medical Scholars Program, University of Utah School of Medicine, Salt Lake City, UT

1995-1997 *Doctoral Scholar*, Crossroads, A Program of Evangelicals for Social Action, Philadelphia PA
1989-1992 *Fellow*, The Pew Program in Medicine, Arts, and the Social Sciences, University of Chicago, Chicago, IL

ADMINISTRATIVE EXPERIENCE

Administrative Duties

2019-Present *Chair,* Oversight Committee, Cincinnati Fetal Center, Cincinnati, OH
2014-Present *Chair*, Ethics Committee, Cincinnati Children's Hospital Medical Center, Cincinnati, OH
2012-Present *Director*, Ethics Center, Cincinnati Children's Hospital Medical Center, Cincinnati, OH
2012-Present *Chair,* Ethics Consultation Subcommittee, Cincinnati Children's Hospital Medical Center, Cincinnati, OH
2010 *Co-Chair,* Ethics Subcommittee, Work Group for Emergency Mass Critical Care in Pediatrics, Centers for Disease Control and Prevention, Atlanta, GA
2009 *Chair*, Ethics Working Group, H1N1 and Winter Surge, Primary Children's Medical Center, Salt Lake City, UT
2005-2012 *Chair*, Ethics Committee, Primary Children's Medical Center, Salt Lake City, UT
2005-2012 *Chair*, Ethics Consultation Subcommittee, Primary Children's Medical Center, Salt Lake City, UT
2003-4 *Chair*, Clinical Pertinence Committee, Primary Children's Medical Center, Salt Lake City, UT

Professional & Scientific Committees

Committees

2021 *Member*, EMCO Capacity Collaboration, Ohio Hospital Association, Columbus, OH
2020-2021 *Member*, Allocation of Scarce Resources Work Group, Ohio Hospital Association, Columbus, OH
2020-Present *Member,* Literature Selection Technical Review Committee, National Library of Medicine, Bethesda, MD
2020 *Member*, Crisis Standards of Care Workgroup, The Health Collaborative, Cincinnati, OH
2019-Present *Member,* Healthcare Ethics Consultant Certification Commission, Oak Park, IL
2019 *Member,* Expert Panel, Pediatric Oncology End-of-Life Care Quality Markers, Institute for Cancer Outcomes & Survivorship, University of Alabama at Birmingham, Birmingham, AL
2018 *Member,* Resource Planning and Allocation Team Implementation Task Force, Ohio Department of Health, Columbus, OH
2012-Present *Member*, Gaucher Initiative Medical Expert Committee, Project HOPE, Millwood, VA
2009-2014 *Member,* Clinical Ethics Consultation Affairs Committee, American Society for Bioethics and Humanities, Glenview, IL
2005-2011 *Member,* Committee on Bioethics, American Academy of Pediatrics, Oak Park, IL

Data Safety and Monitoring Boards

2019-Present *Member,* Data and Safety Monitoring Board, Sickle Cell Domestic Trials, National Heart, Lung, and Blood Institute, Bethesda, MD
2018-2019 *Member,* Standing Safety Committee for P-188-NF (Carmeseal-MD™) in Duchenne Muscular Dystrophy, Phrixus Pharmaceuticals, Inc., Ann Arbor, MI
2017-Present *Member*, Observational Study Monitoring Board, Sickle Cell Disease Observational Monitoring Board, National Heart, Lung, and Blood Institute, Bethesda, MD
2016-2018 *Member,* Observational Study Monitoring Board, Long Term Effects of Hydroxyurea in Children with Sickle Cell Anemia, National Heart, Lung, and Blood Institute, Bethesda, MD

Reviewer

2020-Present	*Abstract Reviewer*, American Society for Bioethics and Humanities Annual Meeting
2020	*Grant Reviewer,* The Croatian Science Foundation, Hvatska zaklada za znanost (HRZZ)
2018	*Book Proposal Reviewer*, Elsevier
2018-2019	*Category Leader,* Religion, Culture, and Social Sciences, American Society for Bioethics and Humanities Annual Meeting
2017	*Timekeeper,* American Society for Bioethics and Humanities Annual Meeting
2017-Present	*Abstract Reviewer,* Pediatric Academic Societies Annual Meeting
2016-2021	*Workshop Reviewer*, Pediatric Academic Societies Annual Meeting
2016	*Grant Reviewer*, Innovation Research Incentives Scheme, The Netherlands Organisation for Health Research and Development
2016-2017	*Abstract Reviewer*, American Society for Bioethics and Humanities Annual Meeting
2014, 2016	*External Peer Reviewer*, PSI Foundation, Toronto, Ontario, Canada
2014	*Member,* Scientific Committee, International Conference on Clinical Ethics and Consultation
2013	*Abstract Reviewer*, American Society for Bioethics and Humanities Annual Meeting
2013	*Reviewer*, Open Research Area Plus, Agence Nationale de la Research, Deutsche Forschungsgemeinschaft, Economic and Social Research Council, National Science Foundation, and Organization for Scientific Research
2011-2012	*Abstract Reviewer,* Pediatric Academic Societies Annual Meeting
2011-2013	*Workshop Reviewer*, Pediatric Academic Societies Annual Meeting
2011-2014	*Abstract Reviewer*, Pediatric Hospital Medicine Annual Meeting
2011-2012	*Religious Studies Subcommittee Leader,* Program Committee, American Society for Bioethics and Humanities Annual Meeting
2010	*Abstract Reviewer*, American Society for Bioethics and Humanities Annual Meeting

Other

2021	*Timekeeper,* American Society for Bioethics and Humanities Annual Meeting
2021	*Mentor,* Early Career Advisor Professional Development Track, American Society for Bioethics and Humanities.
2021	*Mentor,* Early Career Advisor Paper or Project Track, American Society for Bioethics and Humanities.
2109	*Mentor*, Early Career Advising Program, American Society for Bioethics and Humanities
2018	*Passing Point Determination*, Healthcare Ethics Consultant-Certified Examination, Healthcare Ethics Consultant Certification Commission
2018	*Member*, Examination Committee, Healthcare Ethics Consultant-Certified Examination, Healthcare Ethics Consultant Certification Commission
2018	*Item Writer*, Healthcare Ethics Consultant-Certified Examination, Healthcare Ethics Consultant Certification Commission

UNIVERSITY COMMUNITY ACTIVITIES

Cincinnati Children's Hospital Medical Center

2020-Present *Member*, Faculty Diversity and Inclusion Steering Committee
2020-Present *Member*, Medical Management of COVID-19 Committee
2020-2021 *Member,* Caregiver Refusal Team
2020-2021 *Member,* COVID-19 Vaccine Allocation Committee
2020 *Member*, Personal Protective Equipment Subcommittee of the COVID-19 Steering. Committee
2018-2019 *Member,* Planning Committee, Center for Clinical & Translational Science & Training Research Ethics Conference
2017-Present *Member*, Donor Selection Committee
2017-2020 *Member,* Employee Emergency Fund Review Committee
2017 *Member,* Root Cause Analysis Team
2016-2017 *Member,* Planning Committee, Center for Clinical & Translational Science & Training Research Ethics Conference
2015-2019 *Member,* Destination Excellence Medical Advisory Committee
2015-Present *Member,* Disorders of Sexual Development Case Review Committee
2015-2019 *Member,* Destination Excellence Case Review Committee
2014-2018 *Member,* Genomics Review Group, Institutional Review Board
2014-2017 *Member,* Center for Pediatric Genomics Leadership Committee
2013-2017 *Member,* Genetic Testing Subcommittee, Health Network
2013-2016 *Member,* Schwartz Center Rounds Planning Committee
2013-2014 *Member*, Genomics Ad Hoc Subcommittee, Board of Directors
2012-Present *Member,* Cincinnati Fetal Center Oversight Committee
2012-Present *Member,* Ethics Committee
2012-Present *Member,* G-23
2012-2016 *Member,* Integrated Solid Organ Transplant Steering Committee

University of Utah

2009-2012 *Member,* Consolidated Hearing Committee

University of Utah School of Medicine

2010-2012 *Member,* Medical Ethics, Humanities, and Cultural Competence Thread Committee
2008-2010 *Member,* Fourth Year Curriculum Committee

University of Utah Department of Pediatrics

2010-2011 *Member,* Planning Committee, 25th Annual Biological Basis of Children's Health Conference, "Sex, Gender, and Sexuality"
2009-2012 *Member,* Medical Executive Committee
2005-2012 *Member,* Retention, Promotion, and Tenure Committee
2004-2012 *Interviewer,* Residency Program
2003-2012 *Member,* Education Committee

Intermountain Healthcare

2009-2012 *Member,* System-Wide Bioethics Resource Service
2009-2012 *Member,* Pediatric Guidance Council

Primary Children's Medical Center

2012-2012 *Member,* Shared Accountability Organization Steering Committee
2009 *Member*, H1N1 and Winter Surge Executive Planning Team
2005-2010 *Member,* Continuing Medical Education Committee
2005-2010 *Member*, Grand Rounds Planning Committee
2003-2012 *Member*, Ethics Committee

ACTIVE MEMBERSHIPS IN PROFESSIONAL SOCIETIES

2012-Present Association of Bioethics Program Directors
2011-Present Society for Pediatric Research
2000-Present American Academy of Pediatrics
1999-Present American Society of Bioethics and Humanities

FUNDING

Past Grants

2015-2019 "Better Outcomes for Children: Promoting Excellence in Healthcare Genomics to Inform Policy."
Percent Effort: 9%
National Human Genome Research Institute
Grant Number: 1U01 HG008666-01
Role: Investigator

2015-2016 "Ethics of Informed Consent for Youth in Foster Care"
Direct Costs: $10,000
Ethics Grant, Center for Clinical and Translational Science and Training
University of Cincinnati Academic Health Center
Role: Co-Investigator

2014-2015 "Extreme Personal Exposure Biomarker Levels: Engaging Community Physicians and Ethicists for Guidance"
Direct Costs: $11,640
Center for Environmental Genetics
University of Cincinnati College of Medicine
Role: Investigator

2014-2015 "Child, Adolescent, and Parent Opinions on Disclosure Policies for Incidental Findings in Clinical Whole Exome Sequencing"
Direct Costs: $4,434
Ethics Grant, Center for Clinical and Translational Science and Training, University of Cincinnati Academic Health Center
Role: Principal Investigator

2013-2014 "Better Outcomes for Children: GWAS & PheWAS in eMERGEII
Percent Effort: 5%
National Human Genome Research Institute
Grant Number: 3U01HG006828-0251
Role: Investigator

2004-2005 "Potential Patients' Knowledge, Attitudes, and Beliefs Regarding Participating in Medical Education: Can They be Interpreted in Terms of Presumed Consent?"
Direct Costs: $8,000

Interdisciplinary Research in Applied Ethics and Human Values, University Research Committee, University of Utah
Role: Principal Investigator

TEACHING RESPONSIBILITIES/ASSIGNMENTS

Course and Curriculum Development

2003-2012 Medical Ethics, Internal Medicine 7560, University of Utah School of Medicine, Taught 1 time per year, Taken by medical students, Enrollment 100

Course Lectures

2018, 2021 Introduction to Biotechnology, "Ethics and Biotechnology" and "Clinical Ethics," BIOL 3027, University of Cincinnati, Taught 1 time per year, Taken by undergraduate students, Enrollment 25.

2018-Present Biomedical Ethics, "Conscientious Objection in Healthcare" and "Ethical Issues in the Care of Transgender Adolescents," MEDS 4035 & MEDS 4036, University of Cincinnati College of Medicine, Taught 1 time per year, Taken by senior undergraduate students, Enrollment 52.

2016 Foundations of Healthcare Ethics and Law, "Clinical Ethics," HESA 390, Xavier University.

2014-Present Physicians and Society, "Transfusion and the Jehovah's Witness Faith," "Obesity Management: Ethics, Policy, and Physician Implicit Bias," "Embryos and Ethics: The Ethics of Designer Babies," "Ethics and Genetic Testing," and "Ethics and Direct to Consumer Genetic Testing," 26950112 and 26950116, University of Cincinnati School of Medicine, Taken by first and second year medical students, Enrollment 100.

2014-Present Ethical Issues in Health Care, "Ethical Issues in Managing Drug Shortages: The Macro, Meso, and Micro Levels," HESA 583, College of Social Sciences, Health, and Education Health Services Administration, Xavier University, Taken by health services administration students, Enrollment 25.

2009 Physical Diagnosis II, Internal Medicine 7160, University of Utah School of Medicine, Taught 1 time per year, Taken by medical students, Enrollment 100

2003-2012 Medical Ethics, Internal Medicine 7560, University of Utah School of Medicine, Taught 1 time per year, Taken by fourth year medical students, Enrollment 100

Small Group Teaching

2018-Present Ethics in Research, GNTD 7003-001, University of Cincinnati School of Medicine, Taught 1 time per year, Taken by fellows, MS, and PhD students, Enrollment 110.

2007 Physical Diagnosis I, Internal Medicine 7150, University of Utah School of Medicine, Taught 1 time per year, Taken by medical students, Enrollment 100

2003-2012 Medical Ethics, Internal Medicine 7560, University of Utah School of Medicine, Taught 1 time per year, Taken by fourth medical students, Enrollment 100

2003 Pediatric Organ System, Pediatrics 7020, University of Utah School of Medicine, Taught 1 time per year, Taken by medical students, Enrollment 100

Graduate Student Committees

2018-Present *Chair,* Scholarship Oversight Committee, William Sveen, Pediatric Critical Care Fellowship, Cincinnati Children's Hospital Medical Center, Cincinnati, OH

2018-2020 *Member*, Scholarship Oversight Committee, Anne Heueman, Genetic Counseling, University of Cincinnati, Cincinnati, OH

2017-2019 *Chair*, Scholarship Oversight Committee, Bryana Rivers, Genetic Counseling, University of Cincinnati, Cincinnati, OH

2013-2015 *Mentor*, Sophia Hufnagel, Combined Pediatrics/Genetics Residency, Cincinnati Children's Hospital Medical Center, Cincinnati, OH
2013-2015 *Co-Chair,* Scholarship Oversight Committee, Andrea Murad, Genetic Counseling, University of Cincinnati, Cincinnati, OH
2013-2014 *Member*, Scholarship Oversight Committee, Grace Tran, Genetic Counseling, University of Cincinnati, Cincinnati, OH
2011-2012 *Chair,* Scholarship Oversight Committee, Kevin E. Nelson, MD, PhD, Pediatric Inpatient Medicine Fellowship, University of Utah, Salt Lake City, UT

Continuing Education Lectures

2008 Choosing Healthplans All Together (CHAT) Exercise Facilitator, 18th Annual Intermountain Medical Ethics Conference, "Setting Priorities for Healthcare in Utah: What Choices are We Ready to Make?," Salt Lake City, Utah, October 3.
2007 *Speaker*, Infant Medical Surgical Unit, Primary Children's Medical Center, "Withholding and Withdrawing Artificial Nutrition and Hydration: Can It Be Consistent With Care?," Salt Lake City, Utah, September 6.
2007 *Faculty Scholar-in Residence,* Summer Seminar, "The Role of Religion in Bioethics," Utah Valley State College, Orem, Utah, May 1.
2006 *Workshop Leader,* Faculty Education Retreat, "Publications and Publishing in Medical Education," University of Utah School of Medicine, Salt Lake City, Utah, September 15.
2006 *Breakout Session,* 16th Annual Intermountain Medical Ethics Conference, "Donation after Cardiac Death: Evolution of a Policy," Salt Lake City, Utah, March 28.

Other Educational Activities

2008 *Instructor*, Contemporary Ethical Issues in Medicine and Medical Research, Osher Lifelong Learning Institute, University of Utah, "Religion and Bioethics: Religiously Based Demands for and Refusals of Treatment," Salt Lake City, Utah, February 7.
2007 *Speaker*, Biology Seminar, Utah Valley State College, "Is He Dead?: Criteria of the Determination of Death and Their Implications for Withdrawing Treatment and Recovering Organs for Transplant," Orem, Utah, September 21.

PEER-REVIEWED JOURNAL ARTICLES

1. Anne C Heuerman, Danielle Bessett, Armand H. Matheny Antommaria, Leandra. K. Tolusso, Nicki Smith, Alison H. Norris and Michelle L. McGowan (2021). "Experiences of reproductive genetic counselors with abortion regulations in Ohio." *Journal of Genetic Counseling*. Online ahead of print. PMID: 34755409.
2. Armand H. Matheny Antommaria and Ndidi I. Unaka. (2021) "Counterpoint: Prioritizing Health Care Workers for Scarce Critical Care Resources is Impractical and Unjust. *Journal of Hospital Medicine.* 16: 182-3. PMID 33617445.
3. Gregory A. Grabowski, Armand H. Matheny Antommaria, Edwin H. Kolodny, and Pramod K. Mistry. (2021) "Gaucher Disease: Basic and Translational Science Needs for More Complete Therapy and Management." *Molecular Genetics and Metabolism*. 132: 59-75. PMID: 33419694.
4. Armand H. Matheny Antommaria, Laura Monhollen, and Joshua K. Schaffzin. (2021) "An Ethical Analysis of Hospital Visitor Restrictions and Masking Requirements During the COVID-19." *Journal of Clinical Ethics.* 32(1): 35-44. PMID 33416516.
5. Armand H. Matheny Antommaria (2020) "The Pediatric Hospital Medicine Core Competencies: 4.05 Ethics." *Journal of Hospital Medicine.* 15(S1): 120-121.
6. Armand H. Matheny Antommaria, Tyler S. Gibb, Amy L. McGuire, Paul Root Wolpe, Matthew K. Wynia, Megan K. Applewhite, Arthur Caplan, Douglas S. Diekema, D. Micah Hester, Lisa Soleymani Lehmann, Renee McLeod-Sordjan, Tamar Schiff, Holly K. Tabor, Sarah E. Wieten, and Jason T. Eberl for a Task Force of the Association of Bioethics Program Directors (2020) "Ventilator

Triage Policies During the COVID-19 Pandemic at U.S. Hospitals Associated With Members of the Association of Bioethics Program Directors." *Annals of Internal Medicine.* 173(3): 188-194. PMID: 32330224.

7. Armand H. Matheny Antommaria (2020) "Conflicting Duties and Reciprocal Obligations During a Pandemic." *Journal of Hospital Medicine.* 5:284-286. PMID: 32379030.
8. Mary V. Greiner, Sarah J. Beal, and Armand H. Matheny Antommaria (2020) "Perspectives on Informed Consent Practices for Minimal-Risk Research Involving Foster Youth." *Pediatrics*. 45:e20192845. PMID: 32156772.
9. Jennifer deSante-Bertkau, Michelle McGowan, and Armand H. Matheny Antommaria (2018) "Systematic Review of Typologies Used to Characterize Clinical Ethics Consultations." *Journal of Clinical Ethics.* 29:291-304. PMID: 30605439.
10. Andrew J. Redmann, Melissa Schopper, Armand H. Matheny Antommaria, Judith Ragsdale, Alessandro de Alarcon, Michael J. Jutter, Catherine K. Hart, and Charles M. Myer. (2018) "To Transfuse or Not to Transfuse? Jehovah's Witnesses and PostOperative Hemorrhage in Pediatric Otolaryngology." *International Journal of Pediatric Otorhinolaryngology*. 115:188-192. PMID: 30368384.
11. Armand H. Matheny Antommaria, Kyle B. Brothers, John A. Myers, Yana B Feygin, Sharon A. Aufox, Murray H. Brilliant, Pat Conway, Stephanie M. Fullerton, Nanibaa' A. Garrison, Carol R. Horowitz, Gail P. Jarvik, Rongling Li, Evette J. Ludman, Catherine A. McCarty, Jennifer B. McCormick, Nathaniel D. Mercaldo, Melanie F. Myers, Saskia C. Sanderson, Martha J. Shrubsole, Jonathan S. Schildcrout, Janet L. Williams, Maureen E. Smith, Ellen Wright Clayton, Ingrid A. Holm. (2018) "Parents' Attitudes toward Consent and Data Sharing in Biobanks: A Multi-Site Experimental Survey." *AJOB Empirical Research.* 21:1-15. PMID: 30240342.
12. Armand H. Matheny Antommaria and Cynthia A. Prows. (2018) "Content Analysis of Requests for Religious Exemptions from a Mandatory Influenza Vaccination Program for Healthcare Personnel" *Journal of Medical Ethics.* 44: 389-391. PMID: 29463693.
13. Armand H. Matheny Antommaria (2017) "May Medical Centers Give Nonresident Patients Priority in Scheduling Outpatient Follow-Up Appointments?" *Journal of Clinical Ethics.* 28: 217-221. PMID: 28930708.
14. Andrea M. Murad, Melanie F. Myers, Susan D. Thompson, Rachel Fisher, and Armand H. Matheny Antommaria (2017) "A Qualitative Study of Adolescents' Understanding of Biobanks and Their Attitudes Toward Participation, Re-contact, and Data Sharing." *American Journal of Medical Genetics: Part A.* 173: 930-937. PMID: 28328120.
15. Saskia Sanderson, Kyle Borthers, Nathaniel Mercaldo, Ellen Wright Clayton, Armand Antommaria, Sharon Aufox, Murray Brillant, Diego Campos, David Carrell, John Connolly, Pat Conway, Stephanie Fullerton, Nanibaa Garrison, Carol Horowitz, Gail Jarvik, David Kaufman, Terrie Kitchner, Rongling Li, Evette Ludman, Cahterine McCarty, Jennifer McCormick, Valerie McManus, Melanie Myers, Aaron Scrol, Janet Williams, Martha Shrubsole, Jonathan Schildcrout, Maureen Smith, and Ingrid Holm (2017) "Public Attitudes Towards Consent and Data Sharing in Biobank Research: A Large Multisite Experimental Survey in the US." *The American Journal of Human Genetics*. 100: 414-427. PMID: 28190457.
16. Maureen E. Smith, Saskia C Sanderson, Kyle B Brothers, Melanie F Myers, Jennifer McCormick, Sharon A Aufox, Martha J Shrubsole, Nanibaa' A Garrison, Nathaniel D Mercaldo, Jonathan S Schildcrout, Ellen Wright Clayton, Armand H. Matheny Antommaria, Melissa Basford, Murray Brilliant, John J Connolly, Stephanie M Fullerton, Carol R Horowitz, Gail P Jarvik, Dave Kaufman, Terrie Kitchner, Rongling Li, Evette J Ludman, Catherine McCarty, Valerie McManus, Sarah C Stallings, Janet L Williams, and Ingrid A Holm (2016) "Conducting a Large, Multi-Site Survey about Patients' Views on Broad Consent: Challenges and Solutions." *BMC Medical Research Methodology.* 16: 162. PMID: 27881091.
17. Angela Lorts, Thomas D. Ryan, Armand H. Matheny Antommaria, Michael Lake, and John Bucuvalas (2016) "Obtaining Consensus Regarding International Transplantation Continues to be

Difficult for Pediatric Centers in the United States." *Pediatric Transplant.* 20: 774-777. PMID: 27477950.

18. Sophia B. Hufnagel, Lisa J. Martin, Amy Cassedy, Robert J. Hopkin, and Armand H. Matheny Antommaria (2016) "Adolescents' Preferences Regarding Disclosure of Incidental Findings in Genomic Sequencing That Are Not Medically Actionable in Childhood." *American Journal of Medical Genetics Part A*. 170: 2083-2088. PMID: 27149544.
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1. W. Bradley Poss and Armand H. Matheny Antommaria (2010) "Mass casualty planning must incorporate needs of children." *AAP News* 31 (July): 38.
2. Robert Murray and Armand H. Matheny Antommaria (2010) "Pediatricians should work with school nurses to develop action plans for children with DNAR orders." *AAP News* 31 (May): 30..
3. Armand H. Matheny Antommaria (2009) "Addressing physicians' conscientious objections in health care." *AAP News* 30 (December): 32.

UNPUBLISHED POSTER PRESENTATIONS

1. Armand H. Matheny Antommaria. (2018) "Ethical Issues in the Care of International Patients: A Case Study." International Conference on Clinical Ethics and Consultation, Oxford, United Kingdom.
1. Jill S Sweney, Brad Poss, Colin Grissom, Brent Wallace, and Armand H Matheny Antommaria, (2010) "Development of a Statewide Pediatric Pandemic Triage Plan in Utah." Pediatric Academic Societies Annual Meeting, Vancouver, Canada. E-PAS20103713.147.
2. Christopher G. Maloney, Armand H. Matheny Antommaria, James F. Bale, Thomas Greene, Jian Ying, Gena Fletcher, and Rajendu Srivastava (2010) "Why Do Pediatric Interns Violate the 30 Hour Work Rule?" Pediatric Academic Societies Annual Meeting, Vancouver, Canada. E-PAS20101500.596
3. Armand H. Matheny Antommaria and Edward B. Clark (2007) "Resolving Conflict through Bioethics Mediation." 3rd International Conference on Ethics Consultation and Clinical Ethics, Toronto, Canada.
4. Elizabeth Tyson, Tracy Hill, Armand Antommaria, Gena Fletcher, and Flory Nkoy (2007) "Physician Practice Patterns Regarding Nasogastric Feeding Supplementation and Intravenous Fluids in Bronchiolitis Patients." Pediatrics Academic Societies Annual Meeting, Toronto, Canada. E-PAS2007:61300.

ORAL PRESENTATIONS

Keynote/Plenary Lectures

International

1. 2021, *Panelist*, Partnership for Quality Medical Donations, Charitable Access Programming for Rare Diseases, "Ethical Issues," Webinar, April 6.
2. 2017, *Invited Speaker*, Spina Bifida Fetoscopic Repair Study Group and Consortium, "Ethics of Innovation and Research in Fetal Surgery," Cincinnati, Ohio, October 26.
3. 2014, *Invited Speaker,* CIC 2013 CCI: Canadian Immunization Conference, "Condition-of-Service Influenza Prevention in Health Care Settings," Ottawa, Canada, December 2.
4. 2014, *Invited Speaker*, National Conference of the Chinese Pediatric Society, "A Brief Introduction to Pediatric Research and Clinical Ethics," Chongqing, China, September 12.

National

1. 2020, *Panelist*, Children's Mercy Bioethics Center, "Ethical Issues in the COVID Pandemic at Children's Hospitals," Webinar, March 2.
2. 2019, *Invited Speaker*, North American Fetal Therapy Network (NAFTnet), "Ethics of Innovation," Chicago, Illinois, October 12.
3. 2019, *Panelist,* National Society of Genetic Counselors Prenatal Special Interest Group, "Fetal Intervention Ethics," Webinar, September 12.
4. 2017, *Invited Participant,* American College of Epidemiology Annual Meeting, Preconference Workshop, "Extreme Personal Exposure Biomarker Levels: Guidance for Study Investigators," New Orleans, Louisiana, September 24.
5. 2016, *Invited Speaker,* American Academy of Pediatrics National Conference & Exhibition, Joint Program: Section on Hospital Medicine and Section on Bioethics, "Resource Allocation: Do We Spend Money to Save One Patient with Ebola or Over a 1,000?" San Francisco, California, October 23.
6. 2016, *Invited Speaker*, 26th Annual Specialist Education in Extracorporeal Membrane Oxygenation (SEECHMO) Conference, "Ethical Issues in ECMO: The Bridge to Nowhere," Cincinnati, Ohio, June 5.
7. 2015, *Invited Speaker,* Extracorporeal Life Support Organization (ELSO) 26th Annual Conference, "ECMO-Supported Donation after Circulatory Death: An Ethical Analysis," Atlanta, Georgia, September 20.
8. 2014, *Invited Speaker*, Pediatric Evidence-Based Practice 2014 Conference: Evidence Implementation for Changing Models of Pediatric Health Care, "Ethical Issues in Evidence-Based Practice," Cincinnati, Ohio, September 19.
9. 2014, *Invited Speaker,* 6th Annual David Kline Symposium on Public Philosophy: Exploring the Synergy Between Pediatric Bioethics and Child Rights, "Does Predictive Genetic Testing for Adult Onset Conditions that Are Not Medically Actionable in Childhood Violate Children's Rights?" Jacksonville, Florida, March 6.
10. 2010, *Invited Speaker,* Quest for Research Excellence: The Intersection of Standards, Culture and Ethics in Childhood Obesity, "Research Integrity and Religious Issues in Childhood Obesity Research," Denver, Colorado, April 21.
11. 2010, *Invited Speaker*, Symposium on the Future of Rights of Conscience in Health Care: Legal and Ethical Perspectives, J. Reuben Clark Law School at Brigham Young University and the Ave Maria School of Law, "Conscientious Objection in Clinical Practice: Disclosure, Consent, Referral, and Emergency Treatment," Provo, Utah, February 26.
12. 2009, *Invited Speaker*, Pediatric Organ Donation Summit, "Research Findings Regarding Variations in Pediatric Hospital Donation after Cardiac Death Policies," Chicago, Illinois, August 18.
13. 2008, *Meet-the-Experts*, American Academy of Pediatrics National Conference & Exhibition, "Physician Refusal to Provide Treatment: What are the ethical issues?" Boston, Massachusetts, October 11.

14. 2008, *Invited Conference Faulty*, Conscience and Clinical Practice: Medical Ethics in the Face of Moral Controversy, The MacLean Center for Clinical Medical Ethics at the University of Chicago, "Defending Positions or Identifying Interests: The Uses of Ethical Argumentation in the Debate over Conscience in Clinical Practice," Chicago, IL, March 18.
15. 2007, *Symposium Speaker*, Alternative Dispute Resolution Strategies in End-of-Life Decisions, The Ohio State University Mortiz College of Law, "The Representation of Children in Disputes at the End-of-Life," Columbus, Ohio, January 18.
16. 2005, *Keynote Speaker*, Decisions and Families, *Journal of Law and Family Studies* and The University of Utah S.J. Quinney College of Law, "Jehovah's Witnesses, Roman Catholicism, and Calvinism: Religion and State Intervention in Parental, Medical Decision-Making," Salt Lake City, Utah, September 23.

Regional/Local

1. 2021, *Panelist*, Pediatric Residency Noon Conference, University of Tennessee Health Science Center, "Bioethics Rounds—Ethical Issues in the Care of Transgender Adolescents," Memphis, Tennessee, September 21.
2. 2020, *Keynote Speaker*, 53rd Annual Clinical Advances in Pediatrics, "Referral to a Fetal Care Center: How You Can Help Patients' Mothers Address the Ethical Issues," Kansas City, Kansas, September 16.
3. 2019, *Speaker,* Patient and Family Support Services, Primary Children's Hospital, "Ethical Issues in the Care of Trans Adolescents," Salt Lake City, Utah, December 5.
4. 2019, *Speaker,* Evening Ethics, Program in Medical Ethics and Humanities, University of Utah School of Medicine, "Patients, Parents, and Professionals: Ethical Issues in the Treatment of Trans Adolescents," Salt Lake City, Utah, December 4.
5. 2019, *Speaker,* Pediatric Hospital Medicine Board Review Course, "Ethics, Legal Issues, and Human Rights including Ethics in Research," Cincinnati, Ohio, September 8.
6. 2019, *Speaker,* Advances in Fetology, "Evolving Attitudes Toward the Treatment of Children with Trisomies," Cincinnati, Ohio, September 6.
7. 2019, *Speaker,* Half-Day Ethics Training: Ethics Consultation & Ethics Committees, "Navigating the Rapids of Clinical Ethics Consultation: Intake, Recommendations, and Documentation," Salt Lake City, Utah, June 1.
8. 2019, *Speaker*, Scientific and Ethical Underpinnings of Gene Transfer/Therapy in Vulnerable Populations: Considerations Supporting Novel Treatments, BioNJ, "What Next? An Ethical analysis of Prioritizing Conditions and Populations for Developing Novel Therapies," Cranbury, New Jersey, March 7.
9. 2018, *Panelist*, Periviability, 17th Annual Regional Perinatal Summit, Cincinnati, Ohio, October 12.
10. 2018, *Speaker,* Regional Advance Practice Registered Nurse (APRN) Conference, "Adults are Not Large Children: Ethical Issues in Caring for Adults in Children's Hospitals," Cincinnati, Ohio, April 26.
11. 2018, *Speaker*, Southern Ohio/Northern Kentucky Sigma Theta Tau International Annual Conference, "Between Hope and Hype: Ethical Issues in Precision Medicine," Sharonville, Ohio, March 2.
12. 2017, *Speaker*, Advances in Fetology 2017, "Ethics of Innovation and Research: Special Considerations in Fetal Therapy Centers," Cincinnati, Ohio, October 27.
13. 2016, *Speaker*, End-of-Life Pediatric Palliative Care Regional Conference, "Ethical/Legal Issues in Pediatric Palliative Care," Cincinnati, Ohio, September 15.
14. 2016, *Speaker*, 26th Annual Bioethics Network of Ohio (BENO) Conference, "When Does Parental Refusal of Medical Treatment for Religious Reasons Constitute Neglect?" Dublin, Ohio, May 29.
15. 2014, *Speaker,* Cincinnati Comprehensive Sickle Cell Center Symposium: Research Ethics of Hydroxyurea Therapy for Sickle Cell Disease During Pregnancy and Lactation, "Ethical Issues in Research with Pregnant and Lactating Women," Cincinnati, Ohio, October 30.

16. 2014, *Speaker,* Advances in Fetology 2014, "The 'Miracle Baby' and Other Cases for Discussion," Cincinnati, Ohio, September 26.
17. 2014, *Speaker,* Advances in Fetology 2014, "'Can you tell me …?': Achieving Informed Consent Given the Prevalence of Low Health Literacy," Cincinnati, Ohio, September 26.
18. 2014, *Panelist*, Center for Clinical & Translational Science & Training, Secrets of the Dead: The Ethics of Sharing their Data, Cincinnati, Ohio, August 28.
19. 2014, *Speaker,* Office for Human Research Protections Research Community Forum: Clinical Research … and All That Regulatory Jazz, "Research Results and Incidental Findings: Do Investigators Have a Duty to Return Results to Participants," Cincinnati, Ohio, May 21.
20. 2013, *Opening Presentation*, Empirical Bioethics: Emerging Trends for the 21st Century, University of Cincinnati Center for Clinical & Translational Science & Training, "Empirical vs. Normative Ethics: A Comparison of Methods," Cincinnati, Ohio, February 21.
21. 2012, *Videoconference,* New York State Task Force on Life and the Law, "Pediatric Critical Care Triage," New York, New York, March 1.
22. 2011, *Presenter,* Fall Faculty Development Workshop, College of Social Work, University of Utah, "Teaching Ethics to Students in the Professions, " Salt Lake City, Utah, November 14.
23. 2011, *Speaker,* 15th Annual Conference, Utah Chapter of the National Association of Pediatric Nurse Practitioners, "Ethical Issues in Pediatric Practice," Salt Lake City, Utah, September 22.
24. 2011, *Speaker*, Code Silver! Active Shooter in the Hospital, Utah Hospitals & Health Systems Association, Salt Lake City, Utah, March 21.
25. 2009, *Speaker,* Medical Staff Leadership Conference, Intermountain Healthcare, "The Ethics of Leadership," Park City, Utah, October 30.
26. 2008, *Speaker*, The Art and Medicine of Caring: Supporting Hope for Children and Families, Primary Children's Medical Center, "Medically Provided Hydration and Nutrition: Ethical Considerations," Salt Lake City, Utah, February 25.
27. 2005, *Speaker*, Utah NAPNAP (National Association of Pediatric Nurse Practitioners) Chapter Pharmacology and Pediatric Conference, "Immunization Update," Salt Lake City, Utah, August 18.
28. 2005, *Keynote Speaker,* 17th Annual Conference, Utah Society for Social Work Leadership in Health Care, "Brain Death: Accommodation and Consultation," Salt Lake City, March 18.
29. 2004, *Continuing Education Presentation*, Utah NAPNAP (National Association of Pediatric Nurse Practitioners), "Febrile Seizures," Salt Lake City, Utah, April 22.
30. 2004, *Speaker,* Advocacy Workshop for Primary Care Providers, "Ethics of Advocacy," Park City, Utah, April 3.
31. 2002, *Speaker,* 16th Annual Biologic Basis of Pediatric Practice Symposium, "Stem Cells: Religious Perspectives," Deer Valley, Utah, September 14.

Meeting Presentations

International

1. 2018, *Speaker*, International Conference on Clinical Ethics and Consultation, "A Systematic Review of Typologies Used to Characterize Clinical Ethics Consultations," Oxford, United Kingdom, June 21.

National

1. 2021, *Panelist,* Pediatric Endocrine Society Annual Meeting, Difference of Sex Development Special Interest Group, Virtual Conference, April 29.
2. 2020, *Speaker,* American Society for Bioethics and Humanities Annual Meeting, "Is This Child Dead? Controversies Regarding the Neurological Criteria for Death," Virtual Conference, October 17.
3. 2020, *Speaker,* American Society for Bioethics and Humanities Annual Meeting, "Contemporary Ethical Controversy in Fetal Therapy: Innovation, Research, Access, and Justice," Virtual Conference, October 15.
4. 2020, *Speaker,* American Society for Bioethics and Humanities Annual Meeting, "K-12 Schools and Mandatory Public Health Programs During the COVID-19 Pandemic," Virtual Conference, October 15.
5. 2019, *Speaker,* American Society for Bioethics and Humanities Annual Meeting, "Ethical Issues in Translating Gene Transfer Studies Involving Children with Neurodegenerative Disorders," Pittsburgh, Pennsylvania, October 26.
6. 2019, *Moderator,* Pediatric Academic Societies Annual Meeting, Clinical Bioethics, Baltimore, Maryland, April 28.
7. 2018, *Presenter,* American Society for Bioethics and Humanities Annual Meeting, "Looking to the Past, Understanding the Present, and Imaging the Future of Bioethics and Medical Humanities' Engagement with Transgender Health," Anaheim, California, October 19.
8. 2018, *Speaker,* American Society for Bioethics and Humanities Annual Meeting, "Should Vaccination Be a Prerequisite for Sold Organ Transplantation?" Anaheim, California, October 18.
9. 2018, Lindsey Douglas, Armand H. Matheny Antommaria, Derek Williams. *Workshop Presenter*, Pediatric Hospital Medicine Annual Meeting, "IRB Approved! Tips and Tricks to Smooth Sailing through the Institutional Review Board (IRB)." Atlanta, Georgia, July 20.
10. 2018, Alan Schroeder, Armand H. Matheny Antommaria, Hannah Bassett, Kevin Chi, Shawn Ralston, Rebecca Blankenburg. *Workshop Speaker,* Pediatric Hospital Medicine Annual Meeting, "When You Don't Agree with the Plan: Balancing Diplomacy, Value, and Moral Distress," Atlanta, Georgia, July 20.
11. 2018, Alan Schroeder, Hannah Bassett, Rebecca Blankenburg, Kevin Chi, Shawn Ralston, Armand H. Matheny Antommaria. *Workshop Speaker,* Pediatric Academic Societies Annual Meeting, "When You Don't Agree with the Plan: Balancing Diplomacy, Value, and Moral Distress," Toronto, Ontario, Canada, May 7.
12. 2017, *Speaker,* American Society for Bioethics and Humanities Annual Meeting, "Tensions in Informed Consent for Gender Affirming Hormone Therapy and Fertility Preservation in Transgender Adolescents," Kansas City, Missouri, October 19.
13. Lindsey Douglas, Armand H. Matheny Antommaria, and Derek Williams. 2017, *Workshop Leader,* PHM[Pediatric Hospital Medicine]2017, "IRB Approved! Tips and Tricks to Smooth Sailing through the Institutional Review Board (IRB) Process," Nashville, Tennessee, July 21.
14. 2016, *Speaker*, American Society for Bioethics and Humanities Annual Meeting, "Ethical Challenges in the Care of International Patients: Organization, Justice, and Cultural Considerations," Washington, DC, October 9.
15. 2015, *Coauthor,* The American Society of Human Genetics Annual Meeting, "Adolescents' Opinions on Disclosure of Non-Actionable Secondary Findings in Whole Exome Sequencing," Baltimore, Maryland, October 9.
16. 2012, *Speaker*, American Society for Bioethics and Humanities Annual Meeting, "A Public Health Ethics Analysis of the Mandatory Immunization of Healthcare Personnel: Minimizing Burdens and Increasing Fairness," Washington, DC, October 21.
17. Armand H. Matheny Antommaria, Valerie Gutmann Koch, Susie A. Han, Carrie S. Zoubul. 2012, *Moderator*, American Society for Bioethics and Humanities Annual Meeting, "Representing the

Underrepresented in Allocating Scarce Resources in a Public Health Emergency: Ethical and Legal Considerations," Washington, DC, October 21.

18. 2012, *Platform Presentation,* Pediatric Academic Societies Annual Meeting, "Qualitative Analysis of International Variation in Donation after Circulatory Death Policies and Rates," Boston, Massachusetts, April 30. Publication 3150.4.
19. 2011, *Speaker*, American Society for Bioethics and Humanities Annual Meeting, "The Intersection of Policy, Medicine, and Ethics during a Public Health Disaster: Special Considerations for Children and Families," Minneapolis, Minnesota, October 13.
20. Armand H. Matheny Antommaria and Joel Frader. 2010, *Workshop Leader,* Pediatric Academic Societies Annual Meeting, "Conscientious Objection in Health Care: Respecting Conscience and Providing Access," Vancouver, British Columbia, Canada. May 1. Session 1710.
21. 2009, *Workshop Leader,* American Society for Bioethics and Humanities Annual Meeting, "Advanced Clinical Ethics Consultation Skills Workshop: Process and Interpersonal Skills," Washington, DC, October 15.
22. 2009, *Platform Presentation*, Pediatric Academic Societies Annual Meeting, "Qualitative Analysis of Donation after Cardiac Death Policies at Children's Hospitals," Baltimore, Maryland, May 2. Publication 2120.6.
23. 2008, *Speaker*, American Society for Bioethics and Humanities Annual Meeting, "Qualitative Analysis of Donation After Cardiac Death (DCD) Policies at Children's Hospitals," Cleveland, Ohio, October 26.
24. 2007, *Participant,* Hamline University School of Law Biennial Symposium on Advanced Issues in Dispute Resolution, "An Intentional Conversation About Conflict Resolution in Health Care," Saint Paul, Minnesota, November 8-10.
25. *2007*, *Speaker,* American Society of Bioethics and Humanities Annual Meeting, "Bioethics Consultation and Alternative Dispute Resolution: Opportunities for Collaboration," Washington, DC, October 21.
26. 2007, *Speaker,* American Society of Bioethics and Humanities Annual Meeting, "DNAR Orders in Schools: Collaborations Beyond the Hospital," Washington, DC, October 18.
27. Armand H. Matheny Antommaria and Jeannie DePaulis. 2007, *Speaker,* National Association of Children's Hospitals and Related Institutions Annual Meeting, "Using Mediation to Address Conflict and Form Stronger Therapeutic Alliances," San Antonio, Texas, October 9.
28. 2006, *Speaker,* American Society of Bioethics and Humanities Annual Meeting, "Bioethics Mediation: A Critique," Denver, Colorado, October 28.
29. 2005, *Panelist,* American Society of Bioethics and Humanities Annual Meeting, "How I See This Case: 'He Is Not His Brain,'" Washington, DC, October 20.
30. 2005, *Paper Presentation,* Pediatric Ethics: Setting an Agenda for the Future, The Cleveland Clinic, "'He Is Not His Brain:' Accommodating Objections to 'Brain Death,'" Cleveland, Ohio, September 9.
31. 2004, *Speaker,* American Society for Bioethics and Humanities Spring Meeting, "Verification and Balance: Reporting Within the Constraints of Patient Confidentiality," San Antonio, Texas, March 13.
32. 2002, *Panelist*, American Society for Bioethics and Humanities Annual Meeting, "'Who Should Survive?:' Mental Retardation and the History of Bioethics," Baltimore, Maryland, October 24.

Invited/Visiting Professor Presentations

1. 2013, Visiting Professor, "How to Listen, Speak and Think Ethically: A Multidisciplinary Approach," Norton Suburban Hospital and Kosair Children's Hospital, Louisville, Kentucky, May 22.
2. 2010, Visiting Professor, Program in Bioethics and Humanities and Department of Pediatrics, "What to Do When Parents Want Everything Done: 'Futility' and Ethics Facilitation," University of Iowa Carver College of Medicine, Iowa City, Iowa, September 10.

Grand Round Presentations

1. 2019, David Green Lectureship, "Establishing Goals of Care and Ethically Limiting Treatment," Primary Children's Hospital, Salt Lake City, Utah, December 5.
2. 2018, "The Ethics of Medical Intervention for Transgender Youth," El Rio Health, Tucson, Arizona, September 29.
3. 2018, Pediatrics, "Patient Selection, Justice, and Cultural Difference: Ethical Issues in the Care of International Patients," Cleveland Clinic, Cleveland, Ohio, April 10.
4. 2018, Bioethics, "Reversibility, Fertility, and Conflict: Ethical Issues in the Care of Transgender and Gender Nonconforming Children and Adolescents," Cleveland Clinic, Cleveland, Ohio, April 9.
5. 2017, Heart Institute, "'Have you ever thought about what you would want—if god forbid—you became sicker?': Talking with adult patients about advance directives," Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio, October 16.
6. 2017, Pediatrics, "Respectful, Effective Treatment of Jehovah's Witnesses," with Judith R. Ragsdale, PhD, MDiv and David Morales, MD, Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio, March 14.
7. 2017, Pediatrics, "Ethical Dilemmas about Discharging Patients When There Are Disagreements Concerning Safety," Seattle Children's Hospital, Seattle, Washington, January 19.
8. 2015, Pediatrics, "'Nonbeneficial' Treatment: What must providers offer and what can they withhold?," Greenville Health System, Greenville, South Carolina, May 10.
9. 2014, Advance Practice Providers, "Common Ethical Issues," Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio, August 13.
10. 2014, Respiratory Therapy, "Do-Not-Resuscitate (DNR) Orders," Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio, July 15.
11. 2013, Heart Institute, "No Not Months. Twenty-Two *Years*-Old: Transiting Patients to an Adult Model of Care." Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio, October 21.
12. 2013, Division of Neonatology, "This Premature Infant Has a *BRCA1* Mutation!?: Ethical Issues in Clinical Whole Exome Sequencing for Neonatologists." Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio, October 11.
13. 2013, Department of Pediatrics, "Adults are Not Large Children: Ethical Issues in Caring for Adults in Children's Hospitals," Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio, February 26.
14. 2012, "Mandate or Moratorium?: Persisting Ethical Controversies in Donation after Circulatory Death," Cedars-Sinai Medical Center, Los Angeles, California, May 16.
15. 2011, Division of Pediatric Neurology Friday Lecture Series, "Inducing or Treating 'Seizures' with Placebos: Is It Ever Ethical?," University of Utah, Salt Lake City, Utah, October 7.
16. 2011, Department of Surgery, "DNR Orders in the OR and other Ethical Issues in Pediatric Surgery: Case Discussions," Primary Children's Medical Center, Salt Lake City, Utah, October 3.
17. 2009, Department of Pediatrics, "What to Do When Parents Want Everything Done: 'Futility' and Bioethical Mediation," Primary Children's Medical Center, Salt Lake City, Utah, September 17.
18. 2008, Division of Pulmonology and Critical Care, "Futility: May Clinicians Ever Unilaterally Withhold or Withdraw Medical Treatment?" Utah Valley Regional Medical Center, Provo, Utah, April 17.
19. 2007, Division of Otolaryngology-Head and Neck Surgery, "Advance Directives, Durable Powers of Attorney for Healthcare, and Do Not Attempt Resuscitation Orders: Oh My!," University of Utah School of Medicine, Salt Lake City, Utah, June 20.

Outreach Presentations

1. 2019, *Panelist*, Cincinnati Edition, WVXU, "The Ethics of Human Gene Editing," Cincinnati, Ohio, June 13.
2. 2019, *Speaker,* Adult Forum, Indian Hill Church, "Medical Ethics," Indian Hill, Ohio, March 24.

3. 2016, *Speaker,* Conversations in Bioethics: The Intersection of Biology, Technology, and Faith, Mt. Washington Presbyterian Church, "Genetic Testing," Cincinnati, Ohio, October 12.
4. 2008, *Speaker,* Science in Society, Co-sponsored by KCPW and the City Library, "Death—Choices," Salt Lake City, Utah, November 20.
5. 2003, *Panelist,* Utah Symposium in Science and Literature, "The Goodness Switch: What Happens to Ethics if Behavior is All in Our Brains?" Salt Lake City, Utah, October 10.
6. 2002, *Respondent*, H. Tristram Englehardt, Jr. "The Culture Wars in Bioethics," Salt Lake Community College, Salt Lake City, Utah, March 29.

Podcasts

1. 2021, "Ethics of COVID Vaccines in Kids," PHM from Pittsburgh, August 12.
2. 2020, COVID Quandaries: Episode 1, "Is Getting Sick Just Part of the Job?" Hard Call, October 6.

EXHIBIT C

EXHIBIT C

TABLE 1: Strength of Recommendation and Quality of Evidence in Recommendations Made by the Endocrine Society

Strength of the Recommendation/ Quality of the Evidence[1]	Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons	Pediatric Obesity-Assessment, Treatment, and Prevention	Congenital Adrenal Hyperplasia Due to Steroid 21-Hydroxylase Deficiency
Strong|High	0 (0)[2]	0 (0)	0 (0)
Strong|Moderate	3 (11)	4 (13)	18 (33)
Strong|Low	5 (18)	6 (20)	13 (25)
Strong|Very Low	2 (7)	1 (3)	1 (2)
Weak|High	0 (0)	0 (0)	0 (0)
Weak|Moderate	0 (0)	0 (0)	2 (4)
Weak|Low	9 (32)	5 (17)	4 (7)
Weak|Very Low	3 (11)	12 (40)	7 (13)
Ungraded Good Practice Statement[3]	6 (21)	2 (7)	9 (17)
Either Low or Very Low	19 (68)	24 (80)	25 (46)
Total	28	30	54

[1] Quality of the Evidence
High: "Consistent evidence from well-performed RCTs [Randomized Controlled Trials] or exceptionally strong evidence from unbiased observational studies"
Moderate: "Evidence from RCTs with important limitations (inconsistent results, methodological flaws, indirect or imprecise evidence), or unusually strong evidence from unbiased observational studies"
Low: "Evidence for at least one critical outcomes from observational studies, from RCTs with serious flaws, or indirect evidence"
Very Low: "Evidence for at least one of the critical outcomes from unsystematic clinical observations or very indirect evidence"
See Swiglo BA, Murad MH, Schunemann HJ, et al. A case for clarity, consistency, and helpfulness: State-of-the-art clinical practice guidelines in endocrinology using the grading of recommendations, assessment, development, and evaluation system. *J Clin Endocrinol Metab*. 2008;93(3):666-73.

[2] n (%)

[3]Ungraded Good Practice Statement: "Direct evidence for these statements was either unavailable or not systematically appraised and considered out of the scope of this guideline. The intention of these statements is to draw attention to these principles." See Hembree WC, Cohen-Kettenis PT, Gooren L, et al. Endocrine treatment of gender-dysphoric/gender-incongruent persons: An Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab*. 2017;102(11):3869-3903.

Guidelines:

Hembree WC, Cohen-Kettenis PT, Gooren L, et al. Endocrine treatment of gender-dysphoric/gender-incongruent persons: An Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab*. 2017;102(11):3869-3903.

Styne DM, Arslanian SA, Connor EL, et al. Pediatric obesity-assessment, treatment, and prevention: An Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab*. 2017;102(3):709-757.

Speiser PW, Arlt W, Auchus RJ, et al. Congenital adrenal hyperplasia due to steroid 21-hydroxylase deficiency: An Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab*. 2018;103(11):4043-4088.

DOC. 69

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER, *et al.*,	)	
Plaintiffs,	)	
v.	)	No. 2:22-cv-00184-LCB-SRW
KAY IVEY, in her official capacity as Governor of the State of Alabama, *et al.*,	)	
Defendants.	)	

DEFENDANTS' EXHIBIT LIST AND NOTICE OF FILING OF EVIDENCE IN OPPOSITION TO PLAINTIFFS' MOTION FOR PRELIMINARY INJUNCTION

Defendants Kay Ivey, in her official capacity as Governor of the State of Alabama; Steve Marshall, in his official capacity as Attorney General of the State of Alabama; Daryl D. Bailey, in his official capacity as District Attorney for Montgomery County; C. Wilson Blaylock, in his official capacity as District Attorney for Cullman County; Jessica Ventiere, in her official capacity as District Attorney for Lee County; Tom Anderson, in his official capacity as District Attorney for the 12th Judicial Circuit; and Danny Carr, in his official capacity as District Attorney for Jefferson County, submit the following exhibit list for the preliminary injunction hearing scheduled for May 5 and 6, 2022. Defendants also give notice of the filing of the exhibits listed below. These same exhibits will be cited in

Defendants' brief in opposition to the Plaintiffs' motion, which will be filed separately.

Exhibit List

D1 Alabama Vulnerable Child Compassion and Protection Act, Act 2022-289 (SB184)

D2 Declaration of Dr. James Cantor, Ph.D.

D3 Declaration of Dr. Michael K. Laidlaw, M.D.

D4 Declaration of Dr. Quentin L. Van Meter, M.D.

D5 Declaration of Dr. Paul W. Hruz, M.D., Ph.D.

D6 Declaration of Dr. Patrick Hunter, M.D.

D7 Declaration of Dr. Dianna Kenny, Ph.D.

D8 Stephen B. Levine, E. Abbruzzese & Julia M. Mason, *Reconsidering Informed Consent for Trans-Identified Children, Adolescents, and Young Adults*, J. OF SEX & MARITAL THERAPY (Mar. 17, 2022)

D9 *Evidence Review: Gonadotropin Releasing Hormone Analogues for Children and Adolescents with Gender Dysphoria*, Nat'l Inst. for Health & Care Excellence (NICE) (released Mar. 11, 2021), *available at* https://arms.nice.org.uk/resources/hub/1070905/attachment

D10 *Evidence Review: Gender-Affirming Hormones for Children and Adolescents with Gender Dysphoria*, Nat'l Inst. for Health & Care Excellence (NICE) (released Mar. 11, 2021), *available at* https://arms.nice.org.uk/resources/hub/1070871/attachment

D11 Sweden National Board of Health and Welfare Policy Statement, Socialstyrelsen, *Care of Children and Adolescents with Gender Dysphoria: Summary* (2022) *available at* https://www.socialstyrelsen.se/globalassets/sharepoint-dokument/artikelkatalog/kunskapsstod/2022-3-7799.pdf

D12 Finland's Council for Choices in Healthcare Policy Statement, Palveluvalikoima, *Recommendation of the Council for Choices in Health Care in Finland (PALKO / COHERE Finland)* unofficial translation by Society for Evidence Based Medicine available in English at https://segm.org/sites/default/files/Finnish_Guidelines_2020_Minors_Unofficial%20Translation.pdf

D13 Académie Nationale de Médecine, *Medicine and Gender Transidentity in Children and Adolescents* (Feb. 25, 2022), *available at* https://www.academie-medecine.fr/wp-content/uploads/2022/03/22.2.25-Communique-PCRA-19-Gender-identity-ENG.pdf

D14 The Royal Australian & New Zealand College of Psychiatrists, *Recognising and Address the Mental Health Needs of People Experiencing Gender Dysphoria / Gender Incongruence*, Position Statement 103 (Aug. 2021), *available at* https://perma.cc/LR94-73ZU

D15 *Bell v. Tavistock & Portman Nat'l Health Serv. Found. Tr.* [2020] EWHC (Admin) 3274

D16 Centers for Medicare & Medicaid Services, Tamara Syrek Jensen, et al., *Decision Memo for Gender Dysphoria and Gender Reassignment Surgery* (CAG-00446N) (Aug. 30, 2016), *available at* https://perma.cc/9CQN-938N

D17 Am. Psychiatric Ass'n, DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS (5th ed. 2013) (excerpts)

D18 World Professional Ass'n for Transgender Health (WPATH), *Standards of Care for the Health of Transsexual, Transgender, and Gender-Conforming People* (7th Version) (2012)

D19 Wylie C. Hembree et al., *Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guidelines*, 102 J. CLINICAL ENDOCRINOLOGY & METABOLISM 3869 (Nov. 2017)

D20 Lisa Littman, *Parent Reports of Adolescents & Young Adults Perceived to Show Signs of a Rapid Onset of Gender Dysphoria*, PLOS ONE 13(8):e0202330

D21 Lisa Littman, *Individuals Treated for Gender Dysphoria with Medical and/or Surgical Transition who Subsequently Detransitioned: A Survey of 100 Detransitioners*, 50 ARCHIVES OF SEXUAL BEHAVIOR No. 50, 3353-54 (Oct. 2021)

D22 Elie Vandenbussche, *Detransition-Related Needs and Support: A Cross-Sectional Online Survey*, JOURNAL OF HOMOSEXUALITY (Apr. 30, 2021), *available at* https://doi.org/10.1080/00918369.2021.1919479

D23 Annelou de Vries et al., *Young Adult Psychological Outcome After Puberty Suppression and Gender Reassignment*, 130 PEDIATRICS, No. 4, 696-704 (Oct. 2014)

D24 Jason Rafferty, *Policy Statement, Am. Academy of Pediatrics, Ensuring Comprehensive Care & Support for Transgender & Gender-Diverse Children & Adolescents*, 142 Pediatrics no. 4, at 3 (Oct. 2018), *available at* https://perma.cc/EE6U-PN66

D25 Am. Psych. Ass'n, *Guidelines for Psychological Practice with Transgender and Gender Nonconforming People*, 70 Am. Psychologist 832, 836 (Dec. 2015), *available at* https://www.apa.org/practice/guidelines/transgender.pdf

D26 Declaration of Corinna Cohn

D27 Declaration of Sydney Wright

D28 Declaration of Carol Frietas

D29 Declaration of Barbara F.*

D30 Declaration of John Doe*

D31 Declaration of John Roe*

D32 Declaration of Kristine W.*

D33 Declaration of Yaacov Sheinfeld

* Proceeding using a pseudonym to protect the privacy of minor children suffering from gender dysphoria.

D34 Declaration of Martha S.*

D35 Declaration of KathyGrace Duncan

D36 Declaration of Jeanne Crowley*

D37 Declaration of Ted H. Halley

D38 Declaration of Kellie C.*

D39 Declaration of Gary Warner

D40 April 15, 2022 emails regarding *Ladinsky v. Ivy* litigation

Defendants reserve the right to proffer rebuttal exhibits, impeachment exhibits, and any exhibit listed by another party to this action. Pursuant to this Court's order (doc. 34), Defendants file a copy of each exhibit.

Respectfully submitted,

Steve Marshall
Attorney General

Edmund G. LaCour Jr. (ASB-9182-U81L)
Solicitor General

A. Barrett Bowdre (ASB-2087-K29V)
Thomas A. Wilson (ASB-1494-D25C)
Deputy Solicitors General

s/ James W. Davis
James W. Davis (ASB-4063-I58J)
Deputy Attorney General

Benjamin M. Seiss (ASB-2110-O00W)
Assistant Attorney General

OFFICE OF THE ATTORNEY GENERAL
STATE OF ALABAMA
501 Washington Avenue

Christopher Mills
(SC Bar No. 101050)
(*pro hac vice* motion pending)

SPERO LAW LLC
557 East Bay St.
#22251
Charleston, SC 29451
Telephone: (843)
606-0640
cmills@spero.law

P.O. Box 300152
Montgomery, Alabama 36130-0152
Telephone: (334) 242-7300
Edmund.LaCour@AlabamaAG.gov
Barrett.Bowdre@AlabamaAG.gov
Thomas.Wilson@AlabamaAG.gov
Jim.Davis@AlabamaAG.gov
Ben.Seiss@AlabamaAG.gov

Counsel for Defendants

CERTIFICATE OF SERVICE

I certify that I electronically filed this document using the Court's CM/ECF system on May 2, 2022, which will serve all counsel of record.

s/ James W. Davis
Counsel for Defendants

DOC. 69-1

ACT #2022 - 289

DEFENDANT'S EXHIBIT 1

SB184

216600-4

By Senators Shelnutt and Allen

RFD: Healthcare

First Read: 03-FEB-22

SB184

ENROLLED, An Act,

Relating to public health; to prohibit the performance of a medical procedure or the prescription of medication, upon or to a minor child, that is intended to alter the minor child's gender or delay puberty; to provide for exceptions; to provide for disclosure of certain information concerning students to parents by schools; and to establish criminal penalties for violations; and in connection therewith would have as its purpose or effect the requirement of a new or increased expenditure of local funds within the meaning of Amendment 621 of the Constitution of Alabama of 1901, as amended by Amendment 890, now appearing as Section 111.05 of the Official Recompilation of the Constitution of Alabama of 1901, as amended.

BE IT ENACTED BY THE LEGISLATURE OF ALABAMA:

Section 1. This act shall be known and may be cited as the Alabama Vulnerable Child Compassion and Protection Act (V-CAP).

Section 2. The Legislature finds and declares the following:

(1) The sex of a person is the biological state of being female or male, based on sex organs, chromosomes, and

endogenous hormone profiles, and is genetically encoded into a person at the moment of conception, and it cannot be changed.

(2) Some individuals, including minors, may experience discordance between their sex and their internal sense of identity, and individuals who experience severe psychological distress as a result of this discordance may be diagnosed with gender dysphoria.

(3) The cause of the individual's impression of discordance between sex and identity is unknown, and the diagnosis is based exclusively on the individual's self-report of feelings and beliefs.

(4) This internal sense of discordance is not permanent or fixed, but to the contrary, numerous studies have shown that a substantial majority of children who experience discordance between their sex and identity will outgrow the discordance once they go through puberty and will eventually have an identity that aligns with their sex.

(5) As a result, taking a wait-and-see approach to children who reveal signs of gender nonconformity results in a large majority of those children resolving to an identity congruent with their sex by late adolescence.

(6) Some in the medical community are aggressively pushing for interventions on minors that medically alter the child's hormonal balance and remove healthy external and

internal sex organs when the child expresses a desire to appear as a sex different from his or her own.

(7) This course of treatment for minors commonly begins with encouraging and assisting the child to socially transition to dressing and presenting as the opposite sex. In the case of prepubertal children, as puberty begins, doctors then administer long-acting GnRH agonist (puberty blockers) that suppress the pubertal development of the child. This use of puberty blockers for gender nonconforming children is experimental and not FDA-approved.

(8) After puberty blockade, the child is later administered "cross-sex" hormonal treatments that induce the development of secondary sex characteristics of the other sex, such as causing the development of breasts and wider hips in male children taking estrogen and greater muscle mass, bone density, body hair, and a deeper voice in female children taking testosterone. Some children are administered these hormones independent of any prior pubertal blockade.

(9) The final phase of treatment is for the individual to undergo cosmetic and other surgical procedures, often to create an appearance similar to that of the opposite sex. These surgical procedures may include a mastectomy to remove a female adolescent's breasts and "bottom surgery" that removes a minor's health reproductive organs and creates an

artificial form aiming to approximate the appearance of the genitals of the opposite sex.

(10) For minors who are placed on puberty blockers that inhibit their bodies from experiencing the natural process of sexual development, the overwhelming majority will continue down a path toward cross-sex hormones and cosmetic surgery.

(11) This unproven, poorly studied series of interventions results in numerous harmful effects for minors, as well as risks of effects simply unknown due to the new and experimental nature of these interventions.

(12) Among the known harms from puberty blockers is diminished bone density; the full effect of puberty blockers on brain development and cognition are yet unknown, though reason for concern is now present. There is no research on the long-term risks to minors of persistent exposure to puberty blockers. With the administration of cross-sex hormones comes increased risks of cardiovascular disease, thromboembolic stroke, asthma, COPD, and cancer.

(13) Puberty blockers prevent gonadal maturation and thus render patients taking these drugs infertile. Introducing cross-sex hormones to children with immature gonads as a direct result of pubertal blockade is expected to cause irreversible sterility. Sterilization is also permanent for those who undergo surgery to remove reproductive organs, and

such persons are likely to suffer through a lifetime of complications from the surgery, infections, and other difficulties requiring yet more medical intervention.

(14) Several studies demonstrate that hormonal and surgical interventions often do not resolve the underlying psychological issues affecting the individual. For example, individuals who undergo cross-sex cosmetic surgical procedures have been found to suffer from elevated mortality rates higher than the general population. They experience significantly higher rates of substance abuse, depression, and psychiatric hospitalizations.

(15) Minors, and often their parents, are unable to comprehend and fully appreciate the risk and life implications, including permanent sterility, that result from the use of puberty blockers, cross-sex hormones, and surgical procedures.

(16) For these reasons, the decision to pursue a course of hormonal and surgical interventions to address a discordance between the individual's sex and sense of identity should not be presented to or determined for minors who are incapable of comprehending the negative implications and life-course difficulties attending to these interventions.

Section 3. For the purposes of this act, the following terms shall have the following meanings:

(1) MINOR. The same meaning as in Section 43-8-1, Code of Alabama 1975.

(2) PERSON. Includes any of the following:

a. Any individual.

b. Any agent, employee, official, or contractor of any legal entity.

c. Any agent, employee, official, or contractor of a school district or the state or any of its political subdivisions or agencies.

(3) SEX. The biological state of being male or female, based on the individual's sex organs, chromosomes, and endogenous hormone profiles.

Section 4. (a) Except as provided in subsection (b), no person shall engage in or cause any of the following practices to be performed upon a minor if the practice is performed for the purpose of attempting to alter the appearance of or affirm the minor's perception of his or her gender or sex, if that appearance or perception is inconsistent with the minor's sex as defined in this act:

(1) Prescribing or administering puberty blocking medication to stop or delay normal puberty.

(2) Prescribing or administering supraphysiologic doses of testosterone or other androgens to females.

(3) Prescribing or administering supraphysiologic doses of estrogen to males.

(4) Performing surgeries that sterilize, including castration, vasectomy, hysterectomy, oophorectomy, orchiectomy, and penectomy.

(5) Performing surgeries that artificially construct tissue with the appearance of genitalia that differs from the individual's sex, including metoidioplasty, phalloplasty, and vaginoplasty.

(6) Removing any healthy or non-diseased body part or tissue, except for a male circumcision.

(b) Subsection (a) does not apply to a procedure undertaken to treat a minor born with a medically verifiable disorder of sex development, including either of the following:

(1) An individual born with external biological sex characteristics that are irresolvably ambiguous, including an individual born with 46 XX chromosomes with virilization, 46 XY chromosomes with under virilization, or having both ovarian and testicular tissue.

(2) An individual whom a physician has otherwise diagnosed with a disorder of sexual development, in which the physician has determined through genetic or biochemical testing that the person does not have normal sex chromosome structure, sex steroid hormone production, or sex steroid hormone action for a male or female.

(c) A violation of this section is a Class C felony.

Section 5. No nurse, counselor, teacher, principal, or other administrative official at a public or private school attended by a minor shall do either of the following:

(1) Encourage or coerce a minor to withhold from the minor's parent or legal guardian the fact that the minor's perception of his or her gender or sex is inconsistent with the minor's sex.

(2) Withhold from a minor's parent or legal guardian information related to a minor's perception that his or her gender or sex is inconsistent with his or her sex.

Section 6. Except as provided for in Section 4, nothing in this act shall be construed as limiting or preventing psychologists, psychological technicians, and master's level licensed mental health professionals from rendering the services for which they are qualified by training or experience involving the application of recognized principles, methods, and procedures of the science and profession of psychology and counseling.

Section 7. Nothing in this section shall be construed to establish a new or separate standard of care for hospitals or physicians and their patients or otherwise modify, amend, or supersede any provision of the Alabama Medical Liability Act of 1987 or the Alabama Medical Liability Act of 1996, or any amendment or judicial interpretation of either act.

Section 8. If any part, section, or subsection of this act or the application thereof to any person or circumstances is held invalid, the invalidity shall not affect parts, sections, subsections, or applications of this act that can be given effect without the invalid part, section, subsection, or application.

Section 9. This act does not affect a right or duty afforded to a licensed pharmacist by state law.

Section 10. Although this bill would have as its purpose or effect the requirement of a new or increased expenditure of local funds, the bill is excluded from further requirements and application under Amendment 621, as amended by Amendment 890, now appearing as Section 111.05 of the Official Recompilation of the Constitution of Alabama of 1901, as amended, because the bill defines a new crime or amends the definition of an existing crime.

Section 11. This act shall become effective 30 days following its passage and approval by the Governor, or its otherwise becoming law.

President and Presiding Officer of the Senate

Speaker of the House of Representatives

SB184

Senate 23-FEB-22

I hereby certify that the within Act originated in and passed the Senate, as amended.

Patrick Harris,
Secretary.

House of Representatives
Passed: 07-APR-22

By: Senator Shelnutt

APPROVED 4-8-2022

TIME 2:10 pm

GOVERNOR

Alabama Secretary Of State

Act Num....: 2022-289
Bill Num...: S-184

Recv'd 04/08/22 02:23pmSLF

SPONSOR

1 Shelnutt

CO-SPONSORS

2 Allen

19

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I hereby certify that the Resolution as required in Section C of Act No. 81-889 was adopted and is attached to the Bill, SB 184.

yeas 24 nays 4 abstain 0

PATRICK HARRIS,
Secretary

I hereby certify that the notice & proof is attached to the Bill, SB _____ as required in the General Acts of Alabama, 1975 Act No. 919.

PATRICK HARRIS,
Secretary

CONFERENCE COMMITTEE

Senate Conferees _____

_____

_____

DATE: 2-24 2

RD 1 RFD Judy

REPORT OF STANDING COMMITTEE

This bill having been referred by the House to its standing committee on _____ was acted upon by such committee in session, and returned therefrom to the House with the recommendation that it be Passed, w/amend(s) _____ w/sub _____.

This 2 day of March, 2022.

_____, Chairperson

DATE: 3-2 2

RF **RD 2**

DATE: 2

RE-REFERRED ☐ RE-COMMITTED ☐

Committee _____

I hereby certify that the Resolution as required in Section C of Act No. 81-889 was adopted and is attached to the Bill, SB _____.

YEAS _____ **NAYS** _____

JEFF WOODARD,
Clerk

FURTHER HOUSE ACTION (OVER)

DOC. 69-2

DEFENDANT'S EXHIBIT 2

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER, *et al.*,	)	
Plaintiffs,	)	
v.	)	No. 2:22-cv-00184-LCB-SRW
KAY IVEY, in her official capacity as Governor of the State of Alabama, *et al.*,	)	
Defendants.	)	

DECLARATION OF DR. JAMES CANTOR

My name is James Michael Cantor. I am over the age of 19, I am qualified to give this declaration, and, I have personal knowledge of the matters set forth herein.

My CV is attached to this declaration. Recent publications are listed on my CV.

In the past four years, I have provided expert testimony in the following cases:

2022	Hersom & Doe v WVa Health & Human Services	Southern Dist, West Virginia
2022	BPJ v WVa Board of Education	Southern Dist, West Virginia
2021	Cross et al. v Loudoun School Board	Loudoun, Virginia
2021	Allan M. Josephson v Neeli Bendapudi	Western District of Kentucky
2021	Re Commitment of Michael Hughes (Frye Hearing)	Cook County, Illinois
2019	US vs Peter Bright	Southern Dist, NY, NY
2019	Probate and Family Court (Custody Hearing)	Boston, Massachusetts
2019	Re Commitment of Steven Casper (Frye Hearing)	Kendall County, Illinois
2019	Re Commitment of Inger (Frye Hearing)	Poughkeepsie, New York
2018	Re Commitment of Fernando Little (Frye Hearing)	Utica, New York
2018	Canada vs John Fitzpatrick (Sentencing Hearing)	Toronto, Ontario, Canada

I am compensated a the rate of $400 per hour for my work on this matter. My compensation is not dependent upon the substance of my opinions or the outcome of the case.

TABLE OF CONTENTS

I. Introduction

A. Background & Credentials

1. I am a clinical psychologist and Director of the Toronto Sexuality Centre in Canada. For my education and training, I received my Bachelor of Science degree from Rensselaer Polytechnic Institute, where I studied mathematics, physics, and computer science. I received my Master of Arts degree in psychology from Boston University, where I studied neuropsychology. I earned my Doctoral degree in psychology from McGill University, which included successfully defending my doctoral dissertation studying the effects of psychiatric medication and neurochemical changes on sexual behavior, and included a clinical internship assessing and treating people with a wide range of sexual and gender identity issues.

2. Over my academic career, my posts have included Psychologist and Senior Scientist at the Centre for Addiction and Mental Health (CAMH) and Head of Research for CAMH's Sexual Behaviour Clinic, Associate Professor of Psychiatry on the University of Toronto Faculty of Medicine, and Editor-in-Chief of the peer reviewed journal, *Sexual Abuse*. That journal is one of the top-impact, peer-reviewed journals in sexual behavior science and is the official journal of the Association for the Treatment of Sexual Abusers. In that appointment, I was charged to be the final arbiter for impartially deciding which contributions from other scientists in my field merited publication. I believe that appointment indicates not only my extensive experience evaluating scientific claims and methods, but also the faith put in me by the other scientists in my field. I have also served on the Editorial Boards of the *Journal of Sex Research*, the *Archives of Sexual Behavior*, and *Journal of Sexual Aggression*. Thus, although I cannot speak for other scientists, I regularly interact with and am routinely exposed to the views and opinions of most of the scientists active in our field today, within the United States and throughout the world.

3. My scientific expertise spans the biological and non-biological development

of human sexuality, the classification of sexual interest patterns, the assessment and treatment of atypical sexualities, and the application of statistics and research methodology in sex research. I am the author of over 50 peer-reviewed articles in my field, spanning the development of sexual orientation, gender identity, hypersexuality, and atypical sexualities collectively referred to as *paraphilias*. I am the author of the past three editions of the gender identity and atypical sexualities chapter of the *Oxford Textbook of Psychopathology*. These works are now routinely cited in the field and are included in numerous other textbooks of sex research.

4. I began providing clinical services to people with gender dysphoria in 1998. I trained under Dr. Ray Blanchard of CAMH and have participated in the assessment of treatment of over one hundred individuals at various stages of considering and enacting both transition and detransition, including its legal, social, and medical (both cross-hormonal and surgical) aspects. My clinical experience includes the assessment and treatment of several thousand individuals experiencing other atypical sexuality issues. I am regularly called upon to provide objective assessment of the science of human sexuality by the courts (prosecution and defense), professional media, and mental health care providers.

5. I have served as an expert witness in 11 cases in the past five years. These are listed on my *curriculum vitae*, attached here as Appendix 1.

6. A substantial proportion of the existing research on gender dysphoria comes from two clinics, one in Canada and one in the Netherlands. The CAMH gender clinic (previously, Clarke Institute of Psychiatry) was in operation for several decades, and its research was directed by Dr. Kenneth Zucker. I was employed by CAMH between 1998 and 2018. I was a member of the hospital's adult forensic program. However, I was in regular contact with members of the CAMH child psychiatry program (of which Dr. Zucker was a member), and we collaborated on multiple projects.

7. For my work in this case, I am being compensated at the hourly rate of $400

per hour. My compensation does not change based on the conclusions and opinions that I provide here or later in this case or on the outcome of this lawsuit.

B. Overview

8. The principal opinions that I offer and explain in detail in this report include that:

a. A ban on medical transition services for youth under age 18 is consistent with international standards;

b. The large majority of gender dysphoric, pre-pubescent youth cease to feel gender dysphoric by puberty;

c. Among youth under age 18, follow-up studies show positive results in association with psychotherapy, not medically aided transition; and

d. Follow-up studies of medical transition have shown positive results only in samples of adults ages 18 and older.

9. To prepare the present report, I reviewed the following resources related to this litigation:

a. Text of Alabama Bill SB-184;

b. Memorandum in support of plaintiffs' motion for temporary restraining order & preliminary injunction;

c. Declaration of Linda A. Hawkins, Ph.D., LPC in support of plaintiffs' motion for temporary restraining order & preliminary injunction;

d. Declaration of Morissa J. Ladinsky, MD, FAAP, in support of plaintiffs' motion for temporary restraining order & preliminary injunction;

e. Declaration of Stephen Rosenthal, MD, in support of plaintiffs' motion for temporary restraining order & preliminary injunction.

II. Fact-Check of Assertions of Plaintiffs' Experts' Reports

10. I have reviewed the memorandum supporting the plaintiffs' motion, including its declarations by Drs. Hawkins, Ladinsky, and Rosenthal, and compared

its claims with the published, peer-reviewed scientific literature of gender dysphoria, its treatment and outcomes. The motion and all three experts asserted very many very bold claims, but vanishingly little citation of any objective science at all. Of the many hundred relevant, peer-reviewed research articles on this topic, Dr. Hawkins cited three, Dr. Ladinsky cited none at all, and Dr. Rosenthal cited eight, four of which were from the same research team, also cited by Dr. Hawkins. As demonstrated in the following, that small set of articles represents a highly cherry-picked misrepresentation of the relevant body of science, failing to reflect the consensus of the research literature. Their declarations not only fail to reflect the consensus of the science, but also repeatedly assert claims in direct opposition to that science. A comprehensive summary of the research literature on gender dysphoria is provided herein.

A. Professional and International Standards of Care

11. The claims expressed in the plaintiffs' documents largely rely on their claims of professional standards, citing the American Association of Pediatrics (AAP), the World Professional Association for Transgender Health (WPATH), and the Endocrine Society. In so doing, the plaintiffs provided only misleading half-truths, yielding only an incomplete and inaccurate portrayal of the field. Missing from the plaintiffs documentation were that these that these standards have repeatedly been found to be wanting, that their application has failed to produce improvement among patients, and that it is these U.S.-based associations that are out of line with the international consensus of health care experts.

12. First, the plaintiffs' documentation misrepresents the contents of the associations' policies themselves. With the broad exception of the AAP, their statements repeatedly noted instead that:

- Desistance of gender dysphoria occurs in the majority of prepubescent children.

- Mental health issues need to be assessed as potentially contributing factors and need to be addressed before transition.
- Puberty-blocking medication is an experimental, not a routine, treatment.
- Social transition is not generally recommended until after puberty.

Although some other associations have published broad statements of moral support for sexual minorities and against discrimination, they did not include any specific standards or guidelines regarding medical- or transition-related care.

13. Second, the WPATH and the Endocrine Society guidelines have both been subjected to standardized evaluation, the Appraisal of Guidelines for Research and Evaluation ("AGREE II") method, as part of an appraisal of all published CPGs regarding sex and gender minority healthcare.[1] Utilizing community stakeholders to set domain priorities for the evaluation, the assessment concluded that the guidelines regarding HIV and its prevention were of high quality, but that "[t]ransition-related CPGs tended to lack methodological rigour and rely on patchier, lower-quality primary research."[2] Neither the Endocrine Society's or WPATH's guidelines were recommended for use. Indeed, the WPATH guidelines received unanimous ratings of "Do not recommend."[3] Thus, despite the exuberant adjectives offered in the plaintiffs' experts' reports, objective analysis yields the opposite conclusion.

14. The AAP differed from the other (U.S.-based) associations in outlining far less conservative clinical decision-making, but only in contradiction with the published research. Immediately following the publication of the AAP policy, I conducted a point-by-point fact-check of the claims it asserted and the references it cited in support. I submitted that to the *Journal of Sex & Marital Therapy*, a well-known research journal of my field, where it underwent blind peer review and was published. I append that article as part of this report. *See* Appendix 1. A great deal of published attention ensued; however, the AAP has yet to respond to the errors I

[1] Dahlen, *et al.,* 2021.
[2] Dahlen, *et al.*, 2021, at 6.
[3] Dahlen, *et al.,* 2021, at 7.

demonstrated its policy contained. Writing for *The Economist* about the use of puberty blockers, Helen Joyce asked AAP directly, "Has the AAP responded to Dr Cantor? If not, have you any response now?" The AAP Media Relations Manager, Lisa Black, responded: "We do not have anyone available for comment."

15. Finally, the opinions of these U.S.-based associations are in stark opposition to international standards: Public healthcare systems throughout the world have instead been withdrawing their earlier support for childhood transition, responding to the increasingly recognized risks associated with hormonal interventions and the now clear lack of evidence that medical transition was benefitting most children, as opposed to the mental health counseling accompanying transition. These have included the United Kingdom[4], Finland,[5] Sweden[6], and France[7].

B. Claims attributed to Olson and Durwood, *et al.*

16. The Hawkins and Rosenthal reports both cited Olson, *et al.* (2016), claiming it to demonstrate that transition reduce risk of mental illness. That claim entirely misrepresents, indeed reverses, the state of the scientific literature. Although Olson, *et al.* (2016) did indeed report that gender dysphoric children showed no mental health differences from the non-transgender control groups, that report turned out to be incorrect: Not pointed out by Drs Hawkins or Rosenthal is that the Olson data were subsequently subjected to a re-analysis and that, after correcting for statistical errors in the original analysis, the data instead showed that the gender dysphoric children under Olson's care *did,* in fact, exhibit significantly lower mental health[8].

17. I conducted an electronic search of the research literature to identify any

4 U.K. National Institute for Health and Care Excellence, 2020.
5 Council for Choices in Health Care in Finland, 2020.
6 Swedish National Board of Health and Welfare, 2022.
7 Académie Nationale de Médecine, 2022, Feb. 25.
8 Schumm & Crawford, 2020; Schumm, *et al.,* 2019.

responses from the Olson team regarding the Schumm and Crawford re-analysis of the Olson data and was not able to locate any. I contacted Professor Schumm by email on August 22, 2021 to verify that conclusion, to which he wrote there has been: "No response [from Olson]"[9].

18. Rosenthal also cited a retrospective study from the Olson team, published as Durwood et al., 2017. That study surveyed children in the TransYouth Project—people who have socially transitioned, their families, and any contacts they had, by word of mouth. This method is referred to as "convenience sampling," and differs from genuinely representative samples in applying to means of ensuring study participants accurately represent the population being studied. There were three groups of children for comparison: (i) children who had already socially transitioned, (ii) their siblings, and (iii) children in a university database of families interested in participating in child development research. As noted by the study authors, "For the first time, this article reports on socially transitioned gender children's mental health as reported by the children."[10] Reports from parents were also recorded.[11] In contrast, no reports or ratings were provided by any mental health care professional or researcher at all. That is, although adding self-assessments to the professional assessments might indeed provide novel insights, this project did not add self-assessment to professional assessment. Rather, it replaced professional assessment with self-assessment. Moreover, as already noted, Olson's data did not show what the Olson team claimed.[12] The dataset was subsequently re-analyzed, and "[T]o the contrary, the transgender children, even when supported by their parents, had significantly lower average scores on anxiety and self-worth."[13]

19. It is well established in the field of psychology that participant self-

9 Schumm, email communication, Aug. 22, 2021 (on file with author).
10 Durwood, *et al.*, 2017, at 121 (italics added).
11 *See* Olson, *et al.*, 2016.
12 Schumm, *et al.,* 2019.
13 Schumm & Crawford, 2020, p. 9

assessment can be severely unreliable for multiple reasons. For example, one well-known phenomenon in psychological research is known as "socially desirable responding"—the tendency of subjects to give answers that they believe will make themselves look good, rather than accurate answers. Specifically, subjects' reports that they are enjoying good mental health and functioning well could reflect the subjects' desire to be *perceived* as healthy and as having made good choices, rather than reflecting their actual mental health.

20. In their analyses, the study reported finding no significant differences between the transgender children, their non-transgender siblings, or the community controls. As the authors noted, "[t]hese findings are in striking contrast to previous work with gender-nonconforming children who had not socially transitioned, which found very high rates of depression and anxiety."[14] The authors are correct to note that their result contrasts with the previous research, but they do not discuss that this could reflect a problem with the novel research design they used: The subjective self-reports of the children and their parents' reports may not be reflecting reality objectively, as careful professional researchers would. Because the study did not employ any method to detect and control for participants indulging in "socially desirable responding" or acting under other biasing motivations, this possibility cannot be assessed or ruled out.

21. Because this was a single-time study relying on self-reporting, rather than a before-and-after transition study relying on professional evaluation, it is not possible to know if the children reported as well-functioning are in fact well-functioning, nor if so whether they are well-functioning because they were permitted to transition, or whether instead the fact is that they were already well-functioning and therefore permitted to transition. Finally, because the TransYouth project lacks a prospective design, it cannot be known how many cases attempted transition,

[14] Durwood, *et al.*, 2017, at 116.

reacted poorly, and then detransitioned, thus never having entered into the study in the first place.

C. Claims attributed to de Vries, et al.

22. Drs. Hawkins and Rosenthal both cited de Vries, *et al.* (2014) to support their assertion that medical transition of minors improved their mental health. It is not possible for one to come to that conclusion from that study, however. The clinic treating these children (the originators of "The Dutch Protocol"[15]) provides psychotherapy together with medical services. In research science, this situation is called a "confound." It is not possible to distinguish whether any changes were due to the medical services, the psychotherapy, or an interaction between them. Nonetheless, another study, left uncited by the plaintiff's experts, demonstrated that improvements in mental health are associated with receiving psychotherapy rather than medical services. As detailed later in this report, Costa*, et al.,* (2015) conducted a follow-up study of youth in the U.K., one group receiving only psychotherapy, and one group first receiving only psychotherapy and then receiving both psychotherapy and medical services. Both groups improved, and the group receiving medical services failed to show significant differences from the group who received only psychotherapy throughout.

D. Claims attributed to Spack.

23. Dr. Rosenthal also misrepresented the views of Dr. Norman Spack. The article Rosenthal cited—Spack, 2012—repeatedly emphasized that children with gender dysphoria exhibit very many symptoms of mental illnesses. Spack asserted unambiguously that "Gender dysphoric children who do not receive *counseling* have a high risk of behavioural and emotional problems and psychiatric diagnoses"[16]. Dr. Rosenthal's context misrepresents Spack so as to suggest Spack was advocating for

[15] de Vries*, et al.,* 2011.
[16] Spack, *et al.,* 2012, at 422, italics added.

medical transition to treat the gender dysphoria rather than counseling to treat suicidality and any other mental health issues. Moreover still, missing from the Rosenthal report was Spack's conclusion that "[m]ental health intervention should persist for the long term, even after surgery, *as patients continue to be at mental health risk, including for suicide.* While the causes of suicide are multifactorial, the possibility cannot be ruled out that some patients unrealistically believe that surgery(ies) solves their psychological distress."[17] Whereas Rosenthal (selectively) cited Spack to support the insinuation that medical transition relieves distress, Spack instead explicitly warned against drawing exactly that conclusion.

E. Other claims

24. Rosenthal cited Green*, et al.,* (2021) and Turban*, et al.* (2021) to assert that "hormone therapy usage is significantly related to lower rates of depression and suicidality" [Rosenthal, paragraph 45]. In coming to that conclusion, Dr. Rosenthal violates a well-known principal of science: Correlation does not imply causation. That is, this very pattern is what one would predict from clinical gate-keeping: Mental health constitute exclusion criteria by clinical guidelines. Thus, samples of those receiving hormone therapy would necessarily have passed that criterion, whereas the non-medical group would contain those with already identifiable mental health concerns.

25. The plaintiff's experts indicated medical services to alleviate mental health distress; however, people with gender dysphoria continue to experience those mental health symptoms even transition, including a 19 times greater risk of death from suicide.[18] It is this consistent finding in the research literature conclusion that yielded clinical guidelines repeatedly to indicate that mental health issues should be resolved *before* any transition.

[17] Spack, 2013, at 484, italics added
[18] Dhejne, *et al.*, 2011.

III. Science of Gender Dysphoria and Transsexualism

26. One of the most widespread public misunderstandings about transsexualism and people with gender dysphoria is that all cases of gender dysphoria represent the same phenomenon; however, the clinical science has long and consistently demonstrated that gender dysphoric children (cases of *early-onset* gender dysphoria) do not represent the same phenomenon as adult gender dysphoria (cases of *late-onset* gender dysphoria),[19] merely attending clinics at younger ages. That is, gender dysphoric children are not simply younger versions of gender dysphoric adults. They differ in every known regard, from sexual interest patterns, to responses to treatments. A third presentation has recently become increasingly observed among people presenting to gender clinics: These cases appear to have an onset in adolescence in the absence of any childhood history of gender dysphoria. Such cases have been called adolescent-onset or "rapid-onset" gender dysphoria (ROGD).

27. In the context of the present proceedings, the adult-onset phenomenon would not seem relevant; however, very many public misunderstandings and expert misstatements come from misattributing evidence or personal experience from one of these types to the other. For example, there exist only very few cases of transition regret among *adult* transitioners, whereas the research has unanimously shown that the majority of children with gender dysphoria desist—that is, they cease to experience such dysphoria by or during puberty. A brief summary of the adult-onset phenomenon is therefore included here to facilitate distinguishing features which are unique to each type of gender dysphoria.

A. Adult-Onset Gender Dysphoria

28. People with adult-onset gender dysphoria typically attend clinics requesting transition services in mid-adulthood, usually in their 30s or 40s. Such individuals are nearly exclusively male.[20] They typically report being sexually

[19] Blanchard, 1985.
[20] Blanchard, 1990, 1991.

attracted to women and sometimes to both men and women. Some cases profess asexuality, but very few indicate any sexual interest in or behavior involving men.[21] Cases of adult-onset gender dysphoria are typically associated with a sexual interest pattern (medically, a *paraphilia*) involving themselves in female form.[22]

1. Outcome Studies of Transition in Adult-Onset Gender Dysphoria

29. Clinical research facilities studying gender dysphoria have repeatedly reported low rates of regret (less than 3%) among adult-onset patients who underwent complete transition (*i.e.*, social, plus hormonal, plus surgical transition). This has been widely reported by clinics in Canada,[23] Sweden,[24] and the Netherlands.[25]

30. Importantly, each of the Canadian, Swedish, and Dutch clinics for adults with gender dysphoria all performed "gate-keeping" procedures, disqualifying from medical services people with mental health or other contraindications. One would not expect the same results to emerge in the absence of such gate-keeping or when gate-keepers apply only minimal standards or cursory assessment.

2. Mental Health Issues in Adult-Onset Gender Dysphoria

31. The research evidence on mental health issues in gender dysphoria indicates it to be different between adult-onset versus adolescent-onset versus prepubescent-onset types. The co-occurrence of mental illness with gender dysphoria in adults is widely recognized and widely documented.[26] A research team in 2016 published a comprehensive and systematic review of all studies examining rates of mental health issues in transgender adults.[27] There were 38 studies in total. The review indicated that many studies were methodologically weak, but nonetheless

[21] Blanchard, 1988.
[22] Blanchard 1989a, 1989b, 1991.
[23] Blanchard, *et al.*, 1989.
[24] Dhejneberg, *et al.*, 2014.
[25] Wiepjes, *et al.*, 2018.
[26] *See, e.g.*, Hepp, *et al.*, 2005.
[27] Dhejne, *et al.*, 2016.

demonstrated (1) that rates of mental health issues among people are highly elevated both before and after transition, (2) but that rates were less elevated among those who completed transition. Analyses were not conducted in a way so as to compare the elevation in mental health issues observed among people newly attending clinics to improvement after transition. Also, several studies showed more than 40% of patients becoming "lost to follow-up." With attrition rates that high, it is unclear to what extent the information from the available participants genuinely reflects the whole sample. The very high rate of "lost to follow-up" leaves open the possibility of considerably more negative results overall.

32. An important caution applies to interpreting these results: These very high proportions of mental health issues come from people who are attending a clinic for the first time and are undergoing assessment. Clinics serving a "gate-keeper" role divert candidates with mental health issues away from medical intervention. The side-effect of removing these people from the samples of transitioners is that if a researcher compared the average mental health of individuals coming into the clinic with the average mental health of individuals going through medical transition, then the post-transition group would appear to show a substantial improvement, even though transition had *no effect at all*: The removal of people with poorer mental health created the statistical illusion of improvement among the remaining people.

33. The long-standing and consistent finding that gender dysphoric adults have high rates of mental health issues both before and after transition and the finding that those mental health issues cause the gender dysphoria (the epiphenomenon) rather than the other way around indicate a critical point: To the extent that gender dysphoric children resemble adults, we should not expect mental health to improve as a result of transition. Mental health issues should be resolved before any transition.

B. Childhood Onset (Pre-Puberty) Gender Dysphoria

1. Prospective Studies of Childhood-Onset Gender Dysphoria Show that Most Children Desist in the "Natural Course" by Puberty

34. The large majority of childhood onset cases of gender dysphoria occur in biological males, with clinics reporting 2–6 biological male children to each female.[28]

35. Prepubescent children (and their parents) have been approaching mental health professionals for help with their unhappiness with their sex and belief they would be happier living as the other for many decades. Projects following-up and reporting on such cases began being published in the 1970s, with subsequent generations of research employing increasingly sophisticated methods studying the outcomes of increasingly large samples. In total, there have now been 11 such outcomes studies, listed as Appendix 2.

36. In sum, despite coming from a variety of countries, conducted by a variety of labs, using a variety of methods, all spanning four decades, every study without exception has come to the identical conclusion: Among prepubescent children who feel gender dysphoric, the majority cease to want to be the other gender over the course of puberty—ranging from 61–88% desistance across the large, prospective studies. Such cases are often referred to as "desisters," whereas children who continue to feel gender dysphoria are often called "persisters."

37. Notably, in most cases, these children were receiving professional psychosocial support across the study period aimed not at affirming cross-gender identification, but at resolving stressors and issues potentially interfering with desistance. While beneficial to these children and their families, the inclusion of therapy in the study protocol represents a complication for the interpretation of the results: That is, it is not possible to know to what extent the observed outcomes (predominant desistance, with a small but consistent occurrence of persistence) were

[28] Cohen-Kettenis, *et al.*, 2003; Steensma, *et al.,* 2018; Wood, *et al.*, 2013.

influenced by the psychosocial support, or would have emerged regardless. It can be concluded only that prepubescent children who suffer gender dysphoria and receive psychosocial support focused on issues other than "affirmation" of cross-gender identification do in fact desist in suffering from gender dysphoria, at high rates, over the course of puberty.

38. While the absolute number of those who present as prepubescent children with gender dysphoria and "persist" through adolescence is very small in relation to the total population, persistence in some subjects was observed in each of these studies. Thus, the clinician cannot take either outcome for granted.

39. It is because of this long-established and invariably consistent research finding that desistance is probable, but not inevitable, that the "watchful waiting" method became the standard approach for assisting gender dysphoric children. The balance of potential risks to potential benefits is very different for groups likely to desist versus groups unlikely to desist: If a child is very likely to persist, then taking on the risks of medical transition might be more worthwhile than if that child is very likely to desist in transgender feelings.

40. The consistent observation of high rates of desistance among pre-pubertal children who present with gender dysphoria demonstrates a pivotally important—yet often overlooked—feature: because gender dysphoria so often desists on its own, clinical researchers cannot assume that therapeutic intervention cannot facilitate or speed desistance for at least some patients. Such is an empirical question, and there has not yet been any such study.

41. It is also important to note that research has not yet identified any reliable procedure for discerning which children who present with gender dysphoria will persist, as against the majority who will desist, absent transition and "affirmation." Such a method would be valuable, as the more accurately that potential persisters can be distinguished from desisters, the better the risks and benefits of options can

be weighted. Such "risk prediction" and behavioral "test construction" are standard components of applied statistics in the behavioral sciences. Multiple research teams have reported that, on average, groups of persisters are somewhat more gender non-conforming than desisters, but not so different as to usefully predict the course of a particular child.[29]

42. In contrast, a single research team (the aforementioned Olson group) claimed the opposite, asserting that they developed a method of distinguishing persisters from desisters, using a single composite score representing a combination of children's "peer preference, toy preference, clothing preference, gender similarity, and gender identity."[30] The reported a statistical association (mathematically equivalent to a correlation) between that composite score and the probability of persistence. As they indicated, "Our model predicted that a child with a gender-nonconformity score of .50 would have roughly a .30 probability . . . of socially transitioning. By contrast, a child with gender-nonconformity score of .75 would have roughly a .48 probability."[31] Although the Olson team declared that "social transitions may be predictable from gender identification and preferences,"[32] their actual results suggest the opposite: The gender-nonconforming group who went on to transition (socially) had a mean composite score of .73 (which is less than .75), and the gender-nonconforming group who did not transition had a mean composite score of .61, also less than .75.[33] Both of those are lower than the value of .75, so both of those would be more likely than not to desist, rather than to proceed to transition. That is, Olson's model does not distinguish likely from unlikely to transition; rather, it distinguishes unlikely from even less likely to transition.

43. Although it remains possible for some future finding to yield a method to

[29] Singh, *et al.* (2021); Steensma *et al.*, 2013.
[30] Rae, *et al.*, 2019, at 671.
[31] Rae, *et al.*, 2019, at 673.
[32] Rae, *et al.*, 2019, at 669.
[33] Rae, *et al.*, 2019, Supplemental Material at 6, Table S1, bottom line.

identify with sufficient accuracy which gender dysphoric children will persist, there does not exist such a method at the present time. Moreover, in the absence of long-term follow-up, it cannot be known what proportions come to regret having transitioned and then *de*transition. Because only a minority of gender dysphoric children persist in feeling gender dysphoric in the first place, "transition-on-demand" increases the probably of unnecessary transition and unnecessary medical risks.

2. "Watchful Waiting" and "The Dutch Approach"

44. It was this state of the science—that the majority of prepubescent children will desist in their feelings of gender dysphoria and that we lack an accurate method of identifying which children will persist—that led to the development of a clinical approach, often called "The Dutch Approach" (referring to The Netherlands clinic where it was developed) including "Watchful Waiting" periods. Internationally, the Dutch Approach is currently the most widely respected and utilized method for treatment of children who present with gender dysphoria.

45. The purpose of these methods was to compromise the conflicting needs among: clients' desires upon assessment, the long-established and repeated observation that those preferences will change in the majority of (but not all) childhood cases, and that cosmetic aspects of medical transition are perceived to be better when they occur earlier rather than later.

46. The Dutch Approach (also called the "Dutch Protocol") was developed over many years by the Netherlands' child gender identity clinic, incorporating the accumulating findings from their own research as well as those reported by other clinics working with gender dysphoric children. They summarized and explicated the approach in their peer-reviewed report, *Clinical management of gender dysphoria in children and adolescents: The Dutch Approach* (de Vries & Cohen-Kettenis, 2012). The components of the Dutch Approach are:

- no social transition at all considered before age 12 (watchful waiting

period),

- no puberty blockers considered before age 12,
- cross-sex hormones considered only after age 16, and
- resolution of mental health issues before any transition.

47. For youth under age 12, "the general recommendation is watchful waiting and carefully observing how gender dysphoria develops in the first stages of puberty."[34]

48. The age cut-offs of the Dutch Approach authors were not based on any research demonstrating their superiority over other potential age cut-off's. Rather, they were chosen to correspond to ages of consent to medical procedures under Dutch law. But whatever their original rationale, the data from this clinic simply contains no information about safety or efficacy of these measures at younger ages.

49. The authors of the Dutch Approach repeatedly and consistently emphasize the need for extensive mental health assessment, including clinical interviews, formal psychological testing with validated psychometric instruments, and multiple sessions with the child and the child's parents.

50. Within the Dutch approach, there is no social transition before age twelve. That is, social affirmation of the new gender may not begin until age 12—as desistance is less likely to occur past that age. "Watchful Waiting" refers to a child's developmental period up to that age. Watchful waiting does not mean do nothing but passively observe the child. Such children and families typically present with substantial distress involving both gender and non-gender issues. It is during the watchful waiting period that a child (and other family members as appropriate) would undergo therapy, resolving other issues which may be exacerbating psychological stress or dysphoria. As noted by the Dutch clinic, "[T]he adolescents in this study received extensive family or other social support . . . [and they] were all regularly seen by one of the clinic's psychologists or psychiatrists."[35] One is actively treating

[34] de Vries & Cohen-Kettenis, 2012, at 301.
[35] de Vries, *et al.*, 2011, at 2280-81.

the person, while carefully "watching" the dysphoria.

51. The inclusion of psychotherapy and support during the watchful waiting period is, clinically, a great benefit to the gender dysphoric children and their parents. The inclusion of psychotherapy and support poses a scientific complication, however: It becomes difficult to know to what extent the outcomes of these cases might be related to receiving psychotherapy received versus being "spontaneous" desistance, which would have occurred on its own anyway. This situation is referred to in science as a "confound."

3. Studies of Transition Outcomes: Overview

52. Very many strong claims have appeared in the media and on social media asserting that transition results in improved mental health or, contradictorily, in decreased mental health. In the highly politicized context of gender and transgender research, many authors have cited only the findings which appear to support one side, cherry-picking from the complete set of research reports. Seemingly contradictory findings are common in science with on-going research projects. When considered together, however, the full set of relevant reports show that a coherent pattern and conclusion has emerged over time, as detailed in the following sections. Initial optimism was suggested by reports of improvements in mental health.[36] Upon continued analysis, these seeming successes turned out to be illusory, however: The Bränström and Pachankis (2019) finding has been retracted.[37] The greater mental health among transitioners reported by Costa, *et al.* (2015) was noted to be because the control group consisted of cases excluded from hormone eligibility exactly because they showed poor mental health to begin with.[38] The improvements reported by the de Vries studies from the Dutch Clinic themselves appear genuine; however, because that clinic also provides psychotherapy to all cases receiving puberty-blockers, it

[36] Bränström & Pachankis 2019; Costa, *et al.*, 2015; de Vries, *et al.*, 2011; de Vries, *et al.*, 2014.
[37] Kalin, 2020.
[38] Biggs, 2019.

remains entirely plausible that the psychotherapy and not the puberty blockers caused the improvements.[39] New studies continue to appear an accelerating rate, repeatedly reporting deteriorations or lacks of improvement in mental health[40] or lack of improvement beyond psychotherapy alone,[41] and other studies continue to report on only the combined effect of both psychotherapy and hormone treatment together.[42]

a. Outcomes of The Dutch Approach (studies from before 2017): Mix of positive, negative, and neutral outcomes

53. The research confirms that some, but not all, adolescents improve on some, but not all, indicators of mental health and that those indicators are inconsistent across studies. Thus, the balance of potential benefits to potential risks differs across cases, and thus suggests different courses of treatment across cases.

54. The Dutch clinical research team followed up 70 youth undergoing puberty suppression at their clinic.[43] The youth improved on several variables upon follow-up as compared to pre-suppression measurement, including depressive symptoms and general functioning. No changes were detected in feelings of anxiety or anger or in gender dysphoria as a result of puberty suppression; however, natal females using puberty suppression suffered *increased* body dissatisfaction both with their secondary sex characteristics and with nonsexual characteristics.[44]

55. As the report authors noted, while it is possible that the improvement on some variables was due to the puberty-blockers, it is also possible that the improvement was due to the mental health support, and it is possible that the improvement occurred only on its own with natural maturation. So any conclusion that puberty blockers improved the mental health of the treated children is not

39 Biggs, 2020.
40 Carmichael, *et al.*, 2021; Hisle-Gorman, *et al.*, 2021; Kaltiala, *et al.*, 2020.
41 Achille, *et al.*, 2020.
42 Kuper, *et al.*, 2020; van der Miesen, *et al.*, 2020, at 703.
43 de Vries, *et al.* 2011.
44 Biggs, 2020.

justified by the data. Because this study did not include a control group (another group of adolescents matching the first group, but *not* receiving medical or social support), these possibilities cannot be distinguished from each other, representing a confound. The authors of the study were explicit in noting this themselves: "All these factors may have contributed to the psychological well-being of these gender dysphoric adolescents."[45]

56. The authors were careful not to overstate the implications of their results, "We *cautiously* conclude that puberty suppression *may be* a valuable *element* in clinical management of adolescent gender dysphoria."[46]

57. Costa, *et al.* (2015) reported on preliminary outcomes from the Tavistock and Portman NHS Foundation Trust clinic in the UK. They compared the psychological functioning of one group of youth receiving psychological support with a second group receiving both psychological support as well as puberty blocking medication. Both groups improved in psychological functioning over the course of the study, but no statistically significant differences between the groups was detected at any point.[47] As those authors concluded, "Psychological support and puberty suppression were both associated with an improved global psychosocial functioning in GD adolescence. Both these interventions may be considered effective in the clinical management of psychosocial functioning difficulties in GD adolescence."[48] Because psychological support does not pose the physical health risks that hormonal interventions or surgery does (such as loss of reproductive function), one cannot justify taking on the greater risks of social transition, puberty blockers or surgery without evidence of such treatment producing superior results. Such evidence does not exist.

b. Clinicians and advocates have invoked the Dutch Approach

[45] de Vries, *et al.* 2011, at 2281.
[46] de Vries, *et al.* 2011, at 2282, italics added.
[47] Costa, *et al.*, at 2212 Table 2.
[48] Costa, *et al.*, at 2206.

while departing from its protocols in important ways.

58. The reports of partial success contained in de Vries, *et al.* 2011 called for additional research, both to confirm those results and to search for ways to maximize beneficial results and minimize negative outcomes. Instead, many other clinics and clinicians proceeded on the basis of the positives only, broadened the range of people beyond those represented in the research findings, and removed the protections applied in the procedures that led to those outcomes. Many clinics and individual clinicians have reduced the minimum age for transition to 10 instead of 12. While the Dutch Protocol involves interdisciplinary teams of clinicians, many clinics now rely on a single assessor, in some cases one without adequate professional training in childhood and adolescent mental health. Comprehensive, longitudinal assessments (*e.g.*, one and a half *years*[49]) became approvals after one or two assessment sessions. Validated, objective measures of youths' psychological functioning were replaced with clinicians' subjective (and first) opinions, often reflecting only the clients' own self-report. Systematic recordings of outcomes, so as to allow for detection and correction of clinical deficiencies, were eliminated.

59. Notably, Dr. Thomas Steensma, central researcher of the Dutch clinic, has decried other clinics for "blindly adopting our research" despite the indications that those results may not actually apply: "We don't know whether studies we have done in the past are still applicable to today. Many more children are registering, and also a different type."[50] Steensma opined that "every doctor or psychologist who is involved in transgender care should feel the obligation to do a good pre- and post-test." But few if any are doing so.

c. Studies by other clinicians in other countries have failed to reliably replicate the positive components of the results reported by the Dutch clinicians in de Vries et al. 2011.

60. The indications of potential benefit from puberty suppression in at least

[49] de Vries, *et al.*, 2011.
[50] Tetelepta, 2021.

some cases has led some clinicians to attempt to replicate the positive aspects of those findings. These efforts have not succeeded.

61. The Tavistock and Portman clinic in the U.K. recently released its findings, attempting to replicate the outcomes reported by the Dutch clinic.[51] Study participants were ages 12–15 (Tanner stages 3 for natal males, Tanner 2 for natal females) and were repeatedly tested before beginning puberty-blocking medications and then every six months thereafter. Cases exhibiting serious mental illnesses (*e.g.*, psychosis, bipolar disorder, anorexia nervosa, severe body-dysmorphic disorder unrelated to gender dysphoria) were excluded. Relative to the time point before beginning puberty suppression, there were *no* significant changes in any psychological measure, from either the patients' or their parents' perspective.

62. A multidisciplinary team from Dallas published a prospective follow-up study which included 25 youths as they began puberty suppression.[52] (The other 123 study participants were undergoing cross-sex hormone treatment.) Interventions were administered according to "Endocrine Society Clinical Practice Guidelines."[53] Their analyses found *no statistically significant changes* in the group undergoing puberty suppression on any of the nine measures of wellbeing measured, spanning tests of body satisfaction, depressive symptoms, or anxiety symptoms.[54] (Although the authors reported detecting some improvements, these were only found when the large group undergoing cross-sex hormone treatment were added in.) Although the Dutch Approach includes age 12 as a minimum for puberty suppression treatment, this team provided such treatment beginning at age 9.8 years (full range: 9.8–14.9 years).[55]

63. Achille, *et al.* (2020) at Stony Brook Children's Hospital in New York treated a sample of 95 youth with gender dysphoria, providing follow-up data on 50

[51] Carmichael, *et al.*, 2021.
[52] Kuper, *et al.*, 2020, at 5.
[53] Kuper, *et al.*, 2020, at 3, referring to Hembree, *et al.*, 2017.
[54] Kuper, *et al.*, 2020, at Table 2.
[55] Kuper, *et al.*, 2020, at 4.

of them. (The report did not indicate how these 50 were selected from the 95.) As well as receiving puberty blocking medications, "Most subjects were followed by mental health professionals. Those that were not were encouraged to see a mental health professional."[56] The puberty blockers themselves "were introduced in accordance with the Endocrine Society and the WPATH guidelines."[57] Upon follow-up, some incremental improvements were noted; however, after statistically adjusting for psychiatric medication and engagement in counselling, "*most predictors did not reach statistical significance*."[58] That is, puberty blockers did not improve mental health any more than did mental health care on its own.

64. In a recent update, the Dutch clinic reported continuing to find improvement in transgender adolescents' psychological functioning, reaching age-typical levels, "after the start of specialized transgender care involving puberty suppression."[59] Unfortunately, because the transgender care method of that clinic involves both psychosocial support and puberty suppression, it cannot be known which of those (or their combination) is driving the improvement. Also, the authors indicate that the changing demographic and other features among gender dysphoric youth might have caused the treated group to differ from the control group in unknown ways. As the study authors themselves noted, "The present study can, therefore, not provide evidence about the direct benefits of puberty suppression over time and long-term mental health outcomes."[60]

65. It has not yet been determined why the successful outcomes reported by the Dutch child gender clinic a decade ago failed to emerge when applied by others more recently. It is possible that:

(1) The Dutch Approach itself does *not* work and that their originally successful results were a fluke;

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56 Achille, *et al.*, 2020, at 2.
57 Achille, *et al.*, 2020, at 2.
58 Achille, *et al.*, 2020, at 3 (italics added).
59 van der Miesen, *et al.*, 2020, at 699.
60 van der Miesen, *et al.*, 2020, at 703.

(2) The Dutch Approach *does* work, but only in the Netherlands, with local cultural, genetic, or other unrecognized factors that do not generalize to other countries;

(3) The Dutch Approach itself *does* work, but other clinics and individual clinicians are removing safeguards and adding short-cuts to the approach, and those changes are hampering success.

(4) The Dutch Approach *does* work, but the cause of the improvement is the psychosocial support, rather than any medical intervention, which other clinics are *not* providing.

66. The failure of other clinics to repeat the already very qualified success of the Dutch clinic demonstrates the need for still greater caution before endorsing transition and the greater need to resolve potential mental health obstacles before doing so.

4. Mental Health Issues in Childhood-Onset Gender Dysphoria

67. As shown by the outcomes studies, there is no statistically significant evidence that transition reduces the presence of mental illness among transitioners. As shown repeatedly by clinical guidelines from multiple professional associations, mental health issues are expected or required to be resolved *before* undergoing transition. The reasoning behind these conclusions is that children may be expressing gender dysphoria, not because they are experiencing what gender dysphoric adults report, but because they mistake what their experiences indicate or to what they might lead. For example, a child experiencing depression from social isolation might develop hope—and the unrealistic expectation—that transition will help them fit in, this time as and with the other sex.

68. If a child undergoes transition, discovering only then that their mental health or social situations will not in fact change, the medical risks and side-effects (such as sterilization) will have been borne for no reason. If, however, a child resolves the mental health issues first with the gender dysphoria resolving with it (which the research literature shows to be the case in the large majority), then the child need not undergo transition at all, but yet still retains the opportunity to do so later.

69. Elevated rates of multiple mental health issues among gender dysphoric

children are reported throughout the research literature. A formal analysis of children (ages 4–11) undergoing assessment at the Dutch child gender clinic showed 52% fulfilled criteria for a DSM axis-I disorder.[61] A comparison of the children attending the Canadian versus Dutch child gender dysphoria clinic showed only few differences between them, but a large proportion in both groups were diagnosable with clinically significant mental health issues. Results of standard assessment instruments (Child Behavior Check List, or CBCL) demonstrated that the average score was in the clinical rather than healthy range, among children in both clinics.[62] When expressed as percentages, among 6–11-year-olds, 61.7% of the Canadian and 62.1% of the Dutch sample were in the clinical range.

70. A systematic, comprehensive review of all studies of Autism Spectrum Disorders (ASDs) and Attention-Deficit Hyperactivity Disorder (ADHD) among children diagnosed with gender dysphoria was recently conducted. It was able to identify a total of 22 studies examining the prevalence of ASD or ADHD I youth with gender dysphoria. Studies reviewing medical records of children and adolescents referred to gender clinics showed 5–26% to have been diagnosed with ASD.[63] Moreover, those authors gave specific caution on the "considerable overlap between symptoms of ASD and symptoms of gender variance, exemplified by the subthreshold group which may display symptoms which could be interpreted as either ASD or gender variance. Overlap between symptoms of ASD and symptoms of GD may well confound results."[64] When two or more issues are present at the same time (in this case, gender dysphoria present at the same time as ADHD or ASD), researchers cannot distinguish when a result is associated with or caused by the issue of interest (gender dysphoria itself) or one of the side issues, called *confounds* (ADHD or ASD,

61 Wallien, *et al.*, 2007.
62 Cohen-Kettenis, *et al.*, 2003, at 46.
63 Thrower, *et al.*, 2020.
64 Thrower, *et al.*, 2020, at 703.

in the present case).[65] The rate of ADHD among children with GD was 8.3–11%. Conversely, in data from children (ages 6–18) with Autism Spectrum Disorders (ASDs) show they are more than seven times more likely to have parent-reported "gender variance."[66]

C. Adolescent-Onset Gender Dysphoria

1. Features of Adolescent-Onset Gender Dysphoria

71. In the social media age, a third profile has recently begun to present to clinicians or socially, characteristically distinct from the previously identified ones.[67] Unlike adult-onset gender dysphoria and unlike childhood-onset, this group is predominately biologically female. This group first presents in adolescence, but lacks the history of cross-gender behavior in childhood like the childhood-onset cases have. It is this feature which led to the term Rapid Onset Gender Dysphoria (ROGD).[68] The majority of cases appear to occur within clusters of peers and in association with increased social media use[69] and especially among people with autism or other neurodevelopmental or mental health issues.[70]

72. It cannot be easily determined whether the self-reported gender dysphoria is a result of other underlying issues or if those mental health issues are the result of the stresses of being a sexual minority, as some writers are quick to assume.[71] (The science of the *Minority Stress Hypothesis* appears in its own section.) Importantly, and unlike other presentations of gender dysphoria, people with rapid-onset gender dysphoria often (47.2%) experienced *declines* rather than improvements in mental health when they publicly acknowledged their gender status.[72] Although long-term outcomes have not yet been reported, these distinctions demonstrate that one cannot

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65 Cohen-Kettenis *et al.,* 2003, at 51; Skelly *et al.,* 2012.
66 Janssen, *et al.*, 2016.
67 Kaltiala-Heino, *et al.*, 2015; Littman, 2018.
68 Littman, 2018.
69 Littman, 2018.
70 Kaltiala-Heino, *et al.*, 2015; Littman, 2018; Warrier, *et al.*, 2020.
71 Boivin, *et al.*, 2020.
72 Biggs, 2020; Littman, 2018.

apply findings from the other types of gender dysphoria to this type. That is, in the absence of evidence, researchers cannot assume that the pattern found in childhood-onset or adult-onset gender dysphoria also applies to rapid-onset (aka adolescent-onset) gender dysphoria. The group differences already observed argue against the conclusion that any given feature would be present, in general, throughout all types of gender dysphoria.

2. Prospective Studies of Social Transition and Puberty Blockers in Adolescence

73. There do not yet exist prospective outcomes studies either for social transition or for medical interventions for people whose gender dysphoria began in adolescence. That is, instead of taking a sample of individuals and following them forward over time (thus permitting researchers to account for people dropping out of the study, people misremembering the order of events, etc.), all studies have thus far been *retrospective*. It is not possible for such studies to identify what factors caused what outcomes. No study has yet been organized in such a way as to allow for an analysis of the adolescent-onset group, as distinct from childhood-onset or adult-onset cases. Many of the newer clinics (not the original clinics which systematically tracked and reported on their cases' results) fail to distinguish between people who had childhood-onset gender dysphoria and have aged into adolescence and people whose onset was not until adolescence. Similarly, there are clinics failing to distinguish people who had adolescent-onset gender dysphoria and aged into adulthood from adult-onset gender dysphoria. Studies selecting groups according to their current age instead of their ages of onset can produce only confounded results, representing unclear mixes according to how many of each type of case wound up in the final sample.

3. Mental Illness in Adolescent-Onset Gender Dysphoria

74. In 2019, a Special Section of the *Archives of Sexual Behavior* was published:

"Clinical Approaches to Adolescents with Gender Dysphoria." It included this brief yet thorough summary of rates of mental health issues among adolescents expressing gender dysphoria by Dr. Aron Janssen of the Department of Child and Adolescent Psychiatry of New York University:[73] The literature varies in the range of percentages of adolescents with co-occurring disorders. The range for depressive symptoms ranges was 6–42%,[74] with suicide attempts ranging 10 to 45%.[75] Self-injurious thoughts and behaviors range 14–39%.[76] Anxiety disorders and disruptive behavior difficulties including Attention Deficit/Hyperactivity Disorder are also prevalent.[77] Gender dysphoria also overlaps with Autism Spectrum Disorder.[78]

75. Of particular concern in the context of adolescent onset gender dysphoria is *Borderline Personality Disorder* (BPD). The DSM-5-TR criteria for BPD are[79]:

> A pervasive pattern of instability of interpersonal relationships, self-image, and affects, and marked impulsivity beginning by early adulthood and present in a variety of contexts, as indicated by five (or more) of the following:
>
> 1. Frantic efforts to avoid real or imagined abandonment. (Note: Do not include suicidal or self-mutilating behaviour covered in Criterion 5.)
> 2. A pattern of unstable and intense interpersonal relationship characterized by alternating between extremes of idealization and devaluation.
> 3. *Identity disturbance: markedly and persistently unstable self-image or sense of self.*
> 4. Impulsivity in at least two areas that are potentially self-damaging (e.g., spending, sex, substance abuse, reckless driving, binge eating). (Note: Do not include suicidal or self-mutilating behavior covered in Criterion 5.)
> 5. *Recurrent suicidal behaviour, gestures, or threats, or self-mutilating behavior.*
> 6. Affective instability due to a marked reactivity of mood (e.g., intense episodic dysphoria, irritability, or anxiety usually lasting a few hours and only rarely more than a few days).

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73 Janssen, *et al.*, 2019.
74 Holt, *et al.*, 2016; Skagerberg, *et al.*, 2013; Wallien, *et al.*, 2007.
75 Reisner, *et al.*, 2015.
76 Holt, *et al.*, 2016; Skagerberg, *et al.*, 2013.
77 de Vries, *et al.*, 2011; Mustanski, *et al.*, 2010; Wallien, *et al.*, 2007.
78 de Vries, *et al.*, 2010; Jacobs, *et al.*, 2014; Janssen, *et al.*, 2016; May, *et al.*, 2016; Strang, *et al.*, 2014, 2016.
79 American Psychiatric Association, 2022, pp. 752–753, italics added.

7. Chronic feelings of emptiness.
8. Inappropriate, intense anger or difficulty controlling anger (e.g., frequent displays of temper, constant anger, recurrent physical fights).
9. Transient, stress-related paranoid ideation or severe dissociative symptoms.

(Italics added.)

76. It is increasingly hypothesized that very many cases appearing to be adolescent-onset gender dysphoria are actually cases of BPD.[80] That is, some people may be misinterpreting their experiences to represent a gender identity issue, when it instead represents the "identity disturbance" noted in symptom Criterion 3. Like adolescent-onset gender dysphoria, BPD begins to manifest in adolescence, is substantially more common among biological females than males, and occurs in 2–3% of the population, rather than 1-in-5,000 people (*i.e.*, 0.02%). Thus, if even only a portion of people with BPD had an 'identity disturbance' that focused on gender identity and were mistaken for transgender, they could easily overwhelm the number of genuine cases of gender dysphoria.

77. A primary cause for concern is symptom Criterion 5: recurrent suicidality. Regarding the provision of mental health care, this is a crucial distinction: A person with BPD going undiagnosed will not receive the appropriate treatments (the currently most effective of which is Dialectical Behavior Therapy). A person with a cross-gender identity would be expected to feel relief from medical transition, but someone with BPD would not: The problem was not about *gender* identity, but about having an *unstable* identity. Moreover, after a failure of medical transition to provide relief, one would predict for these people increased levels of hopelessness and increased risk of suicidality. One would predict also that misdiagnoses would occur more often if one reflexively dismissed or discounted symptoms of BPD as responses to "minority stress." The Minority Stress Hypothesis is discussed in its own section

[80] *E.g.*, Anzani, *et al.,* 2020; Zucker, 2019.

herein.

78. Regarding research, there have now been several attempts to document rates of suicidality among gender dysphoric adolescents (reviewed in its own section herein). The scientific concern presented by BPD is that it poses a potential confound: samples of gender dysphoric adolescents could appear to have elevated rates of suicidality, not because of the gender dysphoria (or transphobia in society), but because of the number of people with BPD in the sample.

IV. Other Scientific Claims Assessed

A. Conversion Therapy

79. Activists and social media increasingly, but erroneously, apply the term "conversion therapy" moving farther and farther from what the research has reported. "Conversion therapy" (or "reparative therapy" and other names) was the attempt to change a person's sexual orientation; however, with the public more frequently accustomed to "LGB" being expanded to "LGBTQ+", the claims relevant only to sexual orientation are being misapplied to gender identity. The research has repeatedly demonstrated that once one explicitly acknowledges being gay or lesbian, this is only very rarely are mistaken. That is entirely unlike gender identity, wherein the great majority of children who declare cross-gender identity cease to do so by puberty, as shown unanimously by every follow-up study ever published. As the field grows increasingly polarized, any therapy failing to provide affirmation-on-demand is mislabeled "conversion therapy."[81] Indeed, even actions of non-therapists, unrelated to any therapy have been labelled conversion therapy, including the prohibition of biological males competing on female teams.[82]

B. Assessing Claims of Suicidality

80. In the absence of scientific evidence associating improvement with

[81] D'Angelo, *et al.,* 2021.
[82] Turban, 2021, March 16.

transition among youth, demands for transition are increasingly accompanied by hyperbolic warnings of suicide should there be delay or obstacle to affirmation-on-demand. Social media circulate claims of extreme suicidality accompanied by declarations that "I'd rather have a trans daughter than a dead son." Such claims convey only grossly misleading misrepresentations of the research literature, however.

81. Despite that the media treat them as near synonyms, suicide and suicidality are distinct phenomena. They represent different behaviors with different motivations, with different mental health issues, and with differing clinical needs. *Suicide* refers to completed suicides and the sincere intent to die. It is substantially associated with impulsivity, using more lethal means, and being a biological male.[83] *Suicidality* refers to parasuicidal behaviors, including suicidal ideation, threats, and gestures. These typically represent cries for help rather than an intent to die and are more common among biological females. Suicidal threats can indicate any of many problems or represent emotional blackmail, as typified in "If you leave me, I will kill myself." Professing suicidality is also used for attention- seeking or for the support or sympathy it evokes from others, indicating distress much more frequently than an intent to die.

82. The scientific study of suicide is inextricably linked to that of mental illness. For example, as noted in the preceding, suicidality is a well-documented symptom of Borderline Personality Disorder (as are chronic identity issues), and personality disorders are highly elevated among transgender populations, especially adolescent-onset. Thus, the elevations of suicidality among gender dysphoric adolescents may not be a result of anything related to transition (or lack of transition), but to the overlap with mental illness of which suicidality is a substantial part. Conversely,

[83] Freeman, *et al.,* 2017.

improvements in suicidality reported in some studies may not be the result of anything related to transition, but rather to the concurrent general mental health support which is reported by the clinical reported prospective outcomes. Studies that include more than one factor at the same time without accounting for each other represent a "confound," and it cannot be known which factor (or both) is the one causing the effects observed. That is, when a study provides both mental health services and medical transition services at the same time, it cannot be known which (or both) is what caused any changes.

83. A primary criterion for readiness for transition used by the clinics demonstrating successful transition is the absence or resolution of other mental health concerns, such as suicidality. In the popular media, however, indications of mental health concerns are instead often dismissed as an expectable result caused by Sexual Minority Stress (SMS). It is generally implied that such symptoms will resolve upon transition and integration into an affirming environment.

84. Despite that mental health issues, including suicidality, are repeatedly required by clinical standards of care to be resolved before transition, threats of suicide are instead oftentimes used as the very justification for labelling transition a 'medical necessity'. However plausible it might seem that failing to affirm transition causes suicidality, the epidemiological evidence indicates that hypothesis to be incorrect: Suicide rates remains elevated even after complete transition, as shown by a comprehensive review of 17 studies of suicidality in gender dysphoria.[84]

85. Of particular relevance in the present context is suicidality as a well-documented symptom of Borderline Personality Disorder (BPD) and that very many cases appearing to be adolescent-onset gender dysphoria actually represent cases of BPD. [See full DSM-5-TR criteria already listed herein.] That is, some people may be

[84] McNeil, *et al.,* 2017.

misinterpreting their experiencing of the broader "identity disturbance" of symptom Criterion 3 to represent a gender identity issue specifically. Like adolescent-onset gender dysphoria, BPD begins to manifest in adolescence and occurs in 2–3% of the population, rather than 1-in-5,000 people. (Thus, if even only a portion of people with BPD experienced an identity disturbance that focused on gender identity and were mistaken for transgender, they could easily overwhelm the number of genuine cases of gender dysphoria.)

86. Rates of completed suicide are elevated among post-transition transsexuals, but are nonetheless rare,[85] and BPD is repeatedly documented to be greatly elevated among sexual minorities[86]. Overall, rates of suicidal ideation and suicidal attempts appear to be related—not to transition status—but to the social support received: The research evidence shows that support decreases suicidality, but that transition itself does not. Indeed, in some situations, social support was associated with increased suicide attempts, suggesting the reported suicidality may represent attempts to evoke more support.[87]

C. Assessing Demands for Social Transition and Affirmation-Only or Affirmation-on-Demand Treatment in Pre-Pubertal Children.

87. Colloquially, affirmation refers broadly to any actions that treat the person as belonging to a new gender. In different contexts, that could apply to social actions (use of a new name and pronouns), legal actions (changes to birth certificates), or medical actions (hormonal and surgical interventions). That is, social transition, legal transition, and medical transition (and subparts thereof) need not, and rarely do, occur at the same time. In practice, there are cases in which a child has socially only partially transitioned, such as presenting as one gender at home and another at school or presenting as one gender with one custodial parent and another gender with

[85] Wiepjes, *et al.,* 2020.
[86] Reuter, *et al.,* 2016; Rodriguez-Seiljas, *et al.,* 2021; Zanarni, *et al.,* 2021.
[87] Bauer, *et al*., 2015; Canetto, et al., 2021.

the other parent.

88. Referring to "affirmation" as a treatment approach is ambiguous: Although often used in public discourse to take advantage of the positive connotations of the term, it obfuscates what exactly is being affirmed. This often leads to confusion, such as quoting a study of the benefits and risks of social affirmation in a discussion of medical affirmation, where the appearance of the isolated word "affirmation" refers to entirely different actions.

89. It is also an error to divide treatment approaches into affirmative versus non-affirmative. As noted already, the widely adopted Dutch Approach (and the guidelines of the multiple professional associations based on it) cannot be said to be either: It is a staged set of interventions, wherein social transition (and puberty blocking) may not begin until age 12 and cross-sex hormonal and other medical interventions, later.

90. Formal clinical approaches to helping children expressing gender dysphoria employ a gate-keeper model, with decision trees to help clinicians decide when and if the potential benefits of affirmation of the new gender would outweigh the potential risks of doing so. Because the gate-keepers and decision-trees generally include the possibility of affirmation in at least some cases, it is misleading to refer to any one approach as "the affirmation approach." The most extreme decision-tree would be accurately called affirmation-*on-demand,* involving little or no opportunity for children to explore at all whether the distress they feel is due to some other, less obvious, factor, whereas more moderate gate-keeping would endorse transition only in select situations, when the likelihood of regretting transition is minimized.

91. Many outcomes studies have been published examining the results of gate-keeper models, but no such studies have been published regarding affirmation-on-demand with children. Although there have been claims that affirmation-on-demand causes mental health or other improvement, these have been the result only of

"retrospective" rather than "prospective" studies. That is, such studies did not take a sample of children and follow them up over time, to see how many dropped out altogether, how many transitioned successfully, and how many transitioned and regretted it or detransitioned. Rather, such studies took a sample of successfully transitioned adults and asked them retrospective questions about their past. In such studies, it is not possible to know how many other people dropped out or regretted transition, and it is not possible to infer causality from any of the correlations detected, despite authors implying and inferring causality.

D. Assessing the "Minority Stress Hypothesis"

92. The elevated levels of mental health problems among lesbian, gay, and bisexual populations is a well-documented phenomenon, and the idea that it is caused by living within a socially hostile environment is called the *Minority Stress Hypothesis*.[88] The association is not entirely straight-forward, however. For example, although lesbian, gay, and bisexual populations are more vulnerable to suicide ideation overall, the evidence specifically on adult lesbian and bisexual women is unclear. Meyer did not include transgender populations in originating the hypothesis, and it remains a legitimate question to what extent and in what ways it might apply to gender identity.

93. Minority stress is associated, in large part, with being a visible minority. There is little evidence that transgender populations show the patterns suggested by the hypothesis. For example, the minority stress hypothesis would predict differences according to how visibly a person is discernable as a member of the minority, which often changes greatly upon transition. Biological males who are very effeminate stand out throughout childhood, but in some cases can successfully blend in as adult females; whereas the adult-onset transitioners blend in very much as heterosexual cis-gendered males during their youth and begin visibly to stand out in adulthood,

[88] Meyer, 2003.

only for the first time.

94. Also suggesting minority stress cannot be the full story is that the mental health symptoms associated with minority stress do not entirely correspond with those associated with gender dysphoria. The primary symptoms associated with minority stress are depressive symptoms, substance use, and suicidal ideation.[89] The symptoms associated with gender dysphoria indeed include depressive symptoms and suicidal ideation, but also include anxiety symptoms, Autism Spectrum Disorders, and personality disorders.

V. Assessing Statements from Professional Associations

A. Understanding the Value of Statements from Professional Associations

95. The value of position statements from professional associations should be neither over- nor under-estimated. In the ideal, an organization of licensed health care professionals would convene a panel of experts who would systematically collect all the available evidence about an issue, synthesizing it into recommendations or enforceable standards for clinical care, according to the quality of the evidence for each alternative. For politically neutral issues, with relevant expertise contained among association members, this ideal can be readily achievable. For controversial issues with no clear consensus, the optimal statement would summarize each perspective and explicate the strengths and weaknesses of each, providing relatively reserved recommendations and suggestions for future research that might resolve the continuing questions. Several obstacles can hinder that goal, however. Committees within professional organizations are typically volunteer activities, subject to the same internal politics of all human social structures. That is, committee members are not necessarily committees of experts on a topic—they are often committees of generalists handling a wide variety of issues or members of an interest group who

[89] Meyer, 2003.

feel strongly about political implications of an issue, instead of scientists engaged in the objective study of the topic.

96. Thus, documents from professional associations may represent required standards, the violation of which may merit sanctions, or may represent only recommendations or guidelines. A document may represent the views of an association's full membership or only of the committee's members (or majorities thereof). Documents may be based on systematic, comprehensive reviews of the available research or selected portions of the research. In sum, the weight best placed on any association's statement is the amount by which that association employed evidence versus other considerations in its process.

B. Misrepresentations of statements of professional associations.

97. In the presently highly politicized context, official statements of professional associations have been widely misrepresented. In preparing the present report, I searched the professional research literature for documentation of statements from these bodies and from my own files, for which I have been collecting such information for many years. I was able to identify statements from six such organizations. Although not strictly a medical association, the World Professional Association for Transgender Health (WPATH) also distributed a set of guidelines in wide use and on which other organizations' guidelines are based.

98. Notably, despite that all these medical associations reiterate the need for mental health issues to be resolved before engaging in medical transition, only the AACAP members have medical training in mental health. The other medical specialties include clinical participation with this population, but their assistance in transition generally assumes the mental health aspects have already been assessed and treated beforehand.

1. World Professional Association for Transgender Health (WPATH)

99. The WPATH standards as they relate to prepubescent children begin with the acknowledgement of the known rates of desistance among gender dysphoric children:

> [I]n follow-up studies of prepubertal children (mainly boys) who were referred to clinics for assessment of gender dysphoria, the dysphoria persisted into adulthood for only 6–23% of children (Cohen-Kettenis, 2001; Zucker & Bradley, 1995). Boys in these studies were more likely to identify as gay in adulthood than as transgender (Green, 1987; Money & Russo, 1979; Zucker & Bradley, 1995; Zuger, 1984). Newer studies, also including girls, showed a 12–27% persistence rate of gender dysphoria into adulthood (Drummond, Bradley, Peterson-Badali, & Zucker, 2008; Wallien & Cohen-Kettenis, 2008).[90]

100. That is, "In most children, gender dysphoria will disappear before, or early in, puberty."[91]

101. Although WPATH does not refer to puberty blocking medications as "experimental," the document indicates the non-routine, or at least inconsistent availability of the treatment:

> Among adolescents who are referred to gender identity clinics, the number considered eligible for early medical treatment—starting with GnRH analogues to suppress puberty in the first Tanner stages—differs among countries and centers. Not all clinics offer puberty suppression. If such treatment is offered, the pubertal stage at which adolescents are allowed to start varies from Tanner stage 2 to stage 4 (Delemarre, van de Waal & Cohen-Kettenis, 2006; Zucker et al., [2012]).[92]

102. WPATH neither endorses nor proscribes social transitions before puberty, instead recognizing the diversity among families' decisions:

> Social transitions in early childhood do occur within some families with early success. This is a controversial issue, and divergent views are held by health professionals. The current evidence base is insufficient to predict the long-term outcomes of completing a gender role transition during early childhood.[93]

103. It does caution, however, "Relevant in this respect are the previously described relatively low persistence rates of childhood gender dysphoria."[94]

2. Endocrine Society (ES)

90 Coleman, *et al.*, 2012, at 172.
91 Coleman, *et al.*, 2012, at 173.
92 Coleman, *et al.*, 2012, at 173.
93 Coleman, *et al.*, 2012, at 176.
94 Coleman, *et al.*, 2012, at 176 (quoting Drummond, *et al.*, 2008; Wallien & Cohen-Kettenis, 2008).

104. The 150,000-member Endocrine Society appointed a nine-member task force, plus a methodologist and a medical writer, who commissioned two systematic reviews of the research literature and, in 2017, published an update of their 2009 recommendations, based on the best available evidence identified. The guideline was co-sponsored by the American Association of Clinical Endocrinologists, American Society of Andrology, European Society for Paediatric Endocrinology, European Society of Endocrinology, Pediatric Endocrine Society (PES), and the World Professional Association for Transgender Health (WPATH).

105. The document acknowledged the frequency of desistance among gender dysphoric children:

> Prospective follow-up studies show that childhood GD/gender incongruence does not invariably persist into adolescence and adulthood (so-called "desisters"). Combining all outcome studies to date, the GD/gender incongruence of a minority of prepubertal children appears to persist in adolescence. . . . In adolescence, a significant number of these desisters identify as homosexual or bisexual.[95]

106. The statement similarly acknowledges inability to predict desistance or persistence, "With current knowledge, we cannot predict the psychosexual outcome for any specific child."[96]

107. Although outside their area of professional expertise, mental health issues were also addressed by the Endocrine Society, repeating the need to handle such issues before engaging in transition, "In cases in which severe psychopathology, circumstances, or both seriously interfere with the diagnostic work or make satisfactory treatment unlikely, clinicians should assist the adolescent in managing these other issues."[97] This ordering—to address mental health issues before embarking on transition—avoids relying on the unproven belief that transition will solve such issues.

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95 Hembree, *et al.*, 2017, at 3876.
96 Hembree, *et al.*, 2017, at 3876.
97 Hembree, *et al.*, 2017, at 3877.

108. The Endocrine Society did not endorse any affirmation-only approach. The guidelines were neutral with regard to social transitions before puberty, instead advising that such decisions be made only under clinical supervision: "We advise that decisions regarding the social transition of prepubertal youth are made with the assistance of a mental health professional or similarly experienced professional."[98]

109. The Endocrine Society guidelines make explicit that, after gathering information from adolescent clients seeking medical interventions and their parents, the clinician "provides correct information to prevent unrealistically high expectations [and] assesses whether medical interventions may result in unfavorable psychological and social outcomes."[99]

3. Pediatric Endocrine Society and Endocrine Society (ES/PES)

110. In 2020, the 1500-member Pediatric Endocrine Society partnered with the Endocrine Society to create and endorse a brief, two-page position statement.[100] Although strongly worded, the document provided no specific guidelines, instead deferring to the Endocrine Society guidelines.[101]

111. It is not clear to what extent this endorsement is meaningful, however. According to the PES, the Endocrine Society "recommendations include evidence that treatment of gender dysphoria/gender incongruence is medically necessary and should be covered by insurance."[102] However, the Endocrine Society makes neither statement. Although the two-page PES document mentioned insurance coverage four times, the only mention of health insurance by the Endocrine Society was: "If GnRH analog treatment is not available (insurance denial, prohibitive cost, or other reasons), postpubertal, transgender female adolescents may be treated with an

98 Hembree, *et al.*, 2017, at 3872.
99 Hembree, *et al.*, 2017, at 3877.
100 PES, online; Pediatric Endocrine Society & Endocrine Society, Dec. 2020.
101 Pediatric Endocrine Society & Endocrine Society, Dec. 2020, at 1; Hembree, *et al.*, 2017.
102 Pediatric Endocrine Society & Endocrine Society, Dec. 2020, at 1.

antiandrogen that directly suppresses androgen synthesis or action."[103] Despite the PES asserting it as "medically necessary," the Endocrine Society stopped short of that. Its only use of that phrase was instead limiting: "We recommend that a patient pursue genital gender-affirming surgery only after the MHP and the clinician responsible for endocrine transition therapy both agree that surgery is medically necessary and would benefit the patient's overall health and/or well-being."[104]

4. American Academy of Child & Adolescent Psychiatry (AACAP)

112. The 2012 statement of the American Academy of Child & Adolescent Psychiatry (AACAP) is not an affirmation-only policy. It notes:

> Just as family rejection is associated with problems such as depression, suicidality, and substance abuse in gay youth, the proposed benefits of treatment to eliminate gender discordance in youth must be carefully weighed against such possible deleterious effects. . . . In general, it is desirable to help adolescents who may be experiencing gender distress and dysphoria to defer sex reassignment until adulthood, or at least until the wish to change sex is unequivocal, consistent, and made with appropriate consent.[105]

113. The AACAP's language repeats the description of the use of puberty blockers only as an exception: "For situations in which deferral of sex reassignment decisions until adulthood is *not clinically feasible*, one approach that has been described in case series is sex hormone suppression under endocrinological management with psychiatric consultation using gonadotropin-releasing hormone analogues."[106]

114. The AACAP statement acknowledges the long-term outcomes literature for gender dysphoric children: "In follow-up studies of prepubertal boys with gender discordance—including many without any mental health treatment—the cross gender wishes usually fade over time and do not persist into adulthood,"[107] adding that "[c]linicians should be aware of current evidence on the natural course of gender

[103] Hembree, *et al.* 2017, at 3883.
[104] Hembree, *et al.*, 2017 at 3872, 3894.
[105] Adelson & AACAP, 2012, at 969.
[106] Adelson & AACAP, 2012, at 969 (italics added).
[107] Adelson & AACAP, 2012, at 963.

discordance and associated psychopathology in children and adolescents in choosing the treatment goals and modality."[108]

115. The policy similarly includes a provision for resolving mental health issues: "Gender reassignment services are available in conjunction with mental health services focusing on exploration of gender identity, cross-sex treatment wishes, counseling during such treatment if any, and *treatment of associated mental health problems*."[109] The document also includes minority stress issues and the need to deal with mental health aspects of minority status (*e.g.*, bullying).[110]

116. Rather than endorse social transition for prepubertal children, the AACAP indicates: "There is similarly no data at present from controlled studies to guide clinical decisions regarding the risks and benefits of sending gender discordant children to school in their desired gender. Such decisions must be made based on clinical judgment, bearing in mind the potential risks and benefits of doing so."[111]

5. American College of Obstetricians & Gynecologists (ACOG)

117. The American College of Obstetricians & Gynecologists (ACOG) published a "Committee Opinion" expressing recommendations in 2017. The statement indicates it was developed by the ACOG's Committee on Adolescent Health Care, but does not indicate participation based on professional expertise or a systematic method of objectively assessing the existing research. It includes the disclaimer: "This document reflects emerging clinical and scientific advances as of the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed."[112]

118. Prepubertal children do not typically have clinical contact with gynecologists, and the ACOG recommendations include that the client additionally

[108] Adelson & AACAP, 2012, at 968.
[109] Adelson & AACAP, 2012, at 970 (italics added).
[110] Adelson & AACAP, 2012, at 969.
[111] Adelson & AACAP, 2012, at 969.
[112] ACOG, 2017, at 1.

have a primary health care provider.[113]

119. The ACOG statement cites the statements made by other medical associations—European Society for Pediatric Endocrinology (ESPE),, PES, and the Endocrine Society—and by WPATH.[114] It does not cite any professional association of *mental* health care providers, however. The ACOG recommendations repeat the previously mentioned eligibility/readiness criteria of having no mental illness that would hamper diagnosis and no medical contraindications to treatment. It notes: "*Before* any treatment is undertaken, the patient must display eligibility and readiness (Table 1), meaning that the adolescent has been evaluated by a mental health professional, has no contraindications to therapy, and displays an understanding of the risks involved."[115]

120. The "Eligibility and Readiness Criteria" also include, "Diagnosis established for gender dysphoria, transgender, transsexualism."[116] This standard, requiring a formal diagnosis, forestalls affirmation-on-demand because self-declared self-identification is not sufficient for DSM diagnosis.

121. ACOG's remaining recommendations pertain only to post-transition, medically oriented concerns. Pre-pubertal social transition is not mentioned in the document, and the outcomes studies of gender dysphoric (prepubescent) children are not cited.

6. American College of Physicians (ACP)

122. The American College of Physicians published a position paper broadly expressing support for the treatment of LGBT patients and their families, including nondiscrimination, antiharassment, and defining "family" by emotional rather than biological or legal relationships in visitation policies, and the inclusion of transgender

[113] ACOG, 2017, at 1.
[114] ACOG, 2017, at 1, 3.
[115] ACOG, 2017, at 1, 3 (citing the Endocrine Society guidelines) (italics added).
[116] ACOG, 2017, at 3 Table 1.

health care services in public and private health benefit plans.[117]

123. ACP did not provide guidelines or standards for child or adult gender transitions. The policy paper opposed attempting "reparative therapy;" however, the paper confabulated sexual orientation with gender identity in doing so. That is, on the one hand, ACP explicitly recognized that "[s]exual orientation and gender identity are inherently different."[118] It based this statement on the fact that "the American Psychological Association conducted a literature review of 83 studies on the efficacy of efforts to change *sexual orientation*."[119] The APA's document, entitled "Report of the American Psychological Task Force on appropriate therapeutic responses to *sexual orientation*" does not include or reference research on gender identity.[120] Despite citing no research about transgenderism, the ACP nonetheless included in its statement: "Available research does not support the use of reparative therapy as an effective method in the treatment of LGB*T* persons."[121] That is, the inclusion of "T" with "LGB" is based on something other than the existing evidence.

124. There is another statement,[122] which was funded by ACP and published in the Annals of Internal Medicine under its "*In the Clinic*" feature, noting that "'In the Clinic' does not necessarily represent official ACP clinical policy."[123] The document discusses medical transition procedures for adults rather than for children, except to note that "[n]o medical intervention is indicated for prepubescent youth,"[124] that a "mental health provider can assist the child and family with identifying an appropriate time for a social transition,"[125] and that the "child should be assessed and managed for coexisting mood disorders during this period because risk for suicide is

117 Daniel & Butkus, 2015a, 2015b.
118 Daniel & Butkus, 2015b, at 2.
119 Daniel & Butkus, 2015b, at 8 (italics added).
120 APA, 2009 (italics added).
121 Daniel & Butkus, 2015b, at 8 (italics added).
122 Safer & Tangpricha, 2019.
123 Safer & Tangpricha, 2019, at ITC1.
124 Safer & Tangpricha, 2019, at ITC9.
125 Safer & Tangpricha, 2019, at ITC9.

higher than in their cisgender peers."[126]

7. American Academy of Pediatrics (AAP)

125. The policy of the American Academy of Pediatrics (AAP) is unique among the major medical associations in being the only one to endorse an affirmation-on-demand policy, including social transition before puberty without any watchful waiting period. Although changes in recommendations can obviously be appropriate in response to new research evidence, the AAP provided none. Rather, the research studies AAP cited in support of its policy simply did not say what AAP claimed they did. In fact, the references that AAP cited as the basis of their policy instead outright contradicted that policy, repeatedly endorsing watchful waiting.[127] Moreover, of all the outcomes research published, the AAP policy cited *one*, and that without mentioning the outcome data it contained.[128].

8. The ESPE-LWPES GnRH Analogs Consensus Conference Group

126. Included in the interest of completeness, there was also a collaborative report in 2009, between the European Society for Pediatric Endocrinology (ESPE) and the Lawson Wilkins Pediatric Endocrine Society (LWPES).[129] Thirty experts were convened, evenly divided between North American and European labs and evenly divided male/female, who comprehensively rated the research literature on gonadotropin-release hormone analogs in children.

127. The effort concluded that "[u]se of gonadotropin-releasing hormone analogs for conditions other than central precocious puberty requires additional investigation and cannot be suggested routinely."[130] However, gender dysphoria was not explicitly mentioned as one of those other conditions.

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126 Safer & Tangpricha, 2019, at ITC9.
127 Cantor, 2020.
128 Cantor, 2020, at 1.
129 Carel et al., 2009.
130 Carel et al. 2009, at 752.

C. International Health Care Consensus

1. United Kingdom

128. The National Health Service (NHS) of the United Kingdom centralizes gender counselling and transitioning services in a single clinic, the Gender Identity Development Service (GIDS) of the Tavistock and Portman NHS Foundation Trust. Between 2008 and 2018, the number of referrals to the clinic had increased by a factor of 40, leading to a government inquiry into the causes[131]. The GIDS was repeatedly accused of over-diagnosing and permitting transition in cases despite indicators against patient transition, including by 35 members of the GIDS staff, who resigned by 2019[132].

129. The NHS appointed Dr. Hilary Cass, former President of the Royal College of Paediatrics and Child Health, to conduct an independent review[133]. That review included a systematic consolidation of all the research evidence, following established procedures for preventing the "cherry-picking" or selective citation favouring or down-playing any one conclusion[134]. The review's results were unambiguous: "The critical outcomes for decision making are the impact on gender dysphoria, mental health and quality of life. The quality of evidence for these outcomes was assessed as very low"[135], again using established procedures for assessing clinical research evidence (called GRADE). The review also assessed as "very low" the quality of evidence regarding "body image, psychosocial impact, engagement with health care services, impact on extent of an satisfaction with surgery and stopping treatment"[136]. The report concluded that of the existing research, "The studies included in this evidence review are all small, uncontrolled observational studies, which are subject to bias and confounding….They suggest little change with GnRH analogues [puberty

131 Marsh, 2020; Rayner, 2018.
132 BBC, 2021; Donnelly, 2019.
133 National Health Service, 2020, Sept. 22.
134 National Institute for Health and Care Excellence, 2020.
135 National Institute for Health and Care Excellence, 2020, p. 4.
136 National Institute for Health and Care Excellence, 2020, p. 5.

blockers] from baseline to follow-up"[137].

2. Finland

130. In Finland, the assessments of mental health and preparedness of minors for transition services are centralized by law into two research clinics, Helsinki University Central Hospital and Tampere University Hospital. The eligibility of minors began in 2011. In 2019, Finnish researchers published an analysis of the outcomes of adolescents diagnosed with transsexualism and receiving cross-sex hormone treatment[138]. That study showed that despite the purpose of medical transition to improve mental health: "Medical gender reassignment is not enough to improve functioning and relieve psychiatric comorbidities among adolescents with gender dysphoria. Appropriate interventions are warranted for psychiatric comorbidities and problems in adolescent development"[139]. The patients who were functioning well after transition were those who were already functioning well before transition, and those who were functioning poorly, continued to function poorly after transition.

131. Consistent with the evidence, Finland's health care service (Council for Choices in Health Care in Finland—COHERE) thus ended the surgical transition of minors, ruling in 2020 that "Surgical treatments are not part of the treatment methods for dysphoria caused by gender-related conflicts in minors" (COHERE, 2020). The review of the research concluded that "[N]o conclusions can be drawn on the stability of gender identity during the period of disorder caused by a psychiatric illness with symptoms that hamper development." COHERE also greatly restricted access to puberty-blocking and other hormonal treatments, indicating they "may be considered if the need for it continues *after* the other psychiatric symptoms have

[137] National Institute for Health and Care Excellence, 2020, p. 13.
[138] Kaltiala et al., 2020.
[139] Kaltiala et al., 2020, p. 213.

ceased and adolescent development is progressing normally"[140]. The council was explicit in noting the lack of research needed for decision-making, "There is also a need for more information on the *disadvantages* of procedures and on people who regret them"[141].

3. Sweden

132. Sweden's national health care policy regarding trans issues has developed quite similarly to that of the UK. Already in place 20 years ago, Swedish health care policy permitted otherwise eligible minors to receive puberty-blockers beginning at age 14 and cross-sex hormones at age 16.) At that time, only small numbers of minors sought medical transition services. An explosion of referrals ensued in 2013–2014. Sweden's Board of Health and Welfare reported that, in 2018, the number of diagnoses of gender dysphoria was 15 times higher than 2008 among girls ages 13–17.

133. Sweden has long been very accepting with regard to sexual and gender diversity. In 2018, a law was proposed to lower the age of eligibility for ?surgical care from age 18 to 15, remove the requirement for parental consent, and lower legal change of gender to age 12. A series of cases of regret and suicide were reported in the Swedish media, leading to questions of mental health professionals failing to consider. In 2019, the Swedish Agency for Health Technology Assessment and Assessment of Social Services (SBU) therefore conducted its own comprehensive review of the research[142]. Like the UK, the Swedish investigation employed methods to ensure the encapsulation of the all the relevant evidence[143].

134. The SBU report came to the same conclusions as the UK commission. From 2022 forward, the Swedish National Board or Health and Welfare therefore

[140] Council for Choices in Health Care in Finland, 2020; italics added.
[141] Council for Choices in Health Care in Finland, 2020; italics added.
[142] Orange, 2020, Feb 22.
[143] Swedish Agency for Health Technology Assessment and Assessment of Social Services, 2019.

"recommends restraint when it comes to hormone treatment…Based on the results that have emerged, the National Board of Health and Welfare's overall conclusion is that the risks of anti-puberty and sex-confirming hormone treatment for those under 18 currently outweigh the possible benefits for the group as a whole"[144]. Neither puberty blockers nor cross-sex hormones would be provided under age 16, and patients ages 16–18 would receive such treatments only within research settings (clinical trials monitored by the appropriate Swedish research ethics board).

4. France

135. In 2022, the Académie Nationale de Médecine of France issued a strongly worded statement, citing the Swedish ban on hormone treatments. "[A] great medical caution must be taken in children and adolescents, given the vulnerability, particularly psychological, of this population and the many undesirable effects, and even serious complications, that some of the available therapies can cause…such as impact on growth, bone fragility, risk of sterility, emotional and intellectual consequences and, for girls, symptoms reminiscent of menopause"[145]. For hormones, the Académie concluded "the greatest reserve is required in their use," and for surgical treatments, "[T]heir irreversible nature must be emphasized." The Académie did not outright ban medical interventions, but warned "the risk of over-diagnosis is real, as shown by the increasing number of transgender young adults wishing to "detransition". Rather than medical interventions, it advised health care providers "to extend as much as possible the psychological support phase." The Académie reviewed and emphasized the evidence indicating the very large and very sudden increase in youth requesting medical transition. It attributed the change, not to society now being more accepting of sexual diversity, but to social media, "underlining the addictive character of excessive consultation of social networks which is both

144 Swedish National Board of Health and Welfare, 2022.
145 Académie Nationale de Médecine, 2022, Feb. 25.

harmful to the psychological development of young people and responsible, for a very important part, of the growing sense of gender incongruence."

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APPENDICES

Appendix 1

Curriculum Vita

Appendix 2

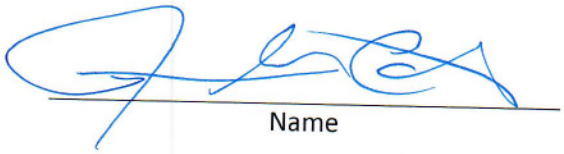
Peer-reviewed article:

Cantor, J. M. (2020). Transgender and gender diverse children and adolescents: Fact-checking of AAP policy. *Journal of Sex & Marital Therapy, 46,* 307–313. doi: 10.1080/0092623X.2019.1698481

Appendix 3

The Outcomes Studies of Childhood-Onset Gender Dysphoria

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct. Executed on 30 April, 2022.



Name

James M. Cantor, PhD

Toronto Sexuality Centre
2 Carlton Ave., suite 1820
Toronto, Ontario, Canada M5B 1J3

[redacted]

EDUCATION

Postdoctoral Fellowship Jan., 2000–May, 2004
Centre for Addiction and Mental Health • Toronto, Canada

Doctor of Philosophy Sep., 1993–Jun., 2000
Psychology • McGill University • Montréal, Canada

Master of Arts Sep., 1990–Jan., 1992
Psychology • Boston University • Boston, MA

Bachelor of Science Sep. 1984–Aug., 1988
Interdisciplinary Science • Rensselaer Polytechnic Institute • Troy, NY
Concentrations: Computer science, mathematics, physics

EMPLOYMENT HISTORY

Director Feb., 2017–Present
Toronto Sexuality Centre • Toronto, Canada

Senior Scientist (Inaugural Member) Aug., 2012–May, 2018
Campbell Family Mental Health Research Institute
Centre for Addiction and Mental Health • Toronto, Canada

Senior Scientist Jan., 2012–May, 2018
Complex Mental Illness Program
Centre for Addiction and Mental Health • Toronto, Canada

Head of Research Nov., 2010–Apr. 2014
Sexual Behaviours Clinic
Centre for Addiction and Mental Health • Toronto, Canada

Research Section Head Dec., 2009–Sep. 2012
Law & Mental Health Program
Centre for Addiction and Mental Health • Toronto, Canada

Psychologist May, 2004–Dec., 2011
Law & Mental Health Program
Centre for Addiction and Mental Health • Toronto, Canada

Clinical Psychology Intern Sep., 1998–Aug., 1999
Centre for Addiction and Mental Health • Toronto, Canada

Teaching Assistant Sep., 1993–May, 1998
Department of Psychology
McGill University • Montréal, Canada

Pre-Doctoral Practicum Sep., 1993–Jun., 1997
Sex and Couples Therapy Unit
Royal Victoria Hospital • Montréal, Canada

Pre-Doctoral Practicum May, 1994–Dec., 1994
Department of Psychiatry
Queen Elizabeth Hospital • Montréal, Canada

ACADEMIC APPOINTMENTS

Associate Professor Jul., 2010–May, 2019
Department of Psychiatry
University of Toronto Faculty of Medicine • Toronto, Canada

Adjunct Faculty Aug. 2013–Jun., 2018
Graduate Program in Psychology
York University • Toronto, Canada

Associate Faculty (Hon) Oct., 2017–Dec., 2017
School of Behavioural, Cognitive & Social Science
University of New England • Armidale, Australia

Assistant Professor Jun., 2005–Jun., 2010
Department of Psychiatry
University of Toronto Faculty of Medicine • Toronto, Canada

Adjunct Faculty Sep., 2004–Jun., 2010
Clinical Psychology Residency Program
St. Joseph's Healthcare • Hamilton, Canada

PUBLICATIONS

1. Cantor, J. M. (2020). Transgender and gender diverse children and adolescents: Fact-checking of AAP policy. *Journal of Sex & Marital Therapy, 46,* 307–313. doi: 10.1080/0092623X.2019.1698481
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PUBLICATIONS

LETTERS AND COMMENTARIES

1. Cantor, J. M. (2015). Research methods, statistical analysis, and the phallometric test for hebephilia: Response to Fedoroff [Editorial Commentary]. *Journal of Sexual Medicine, 12,* 2499–2500. doi: 10.1111/jsm.13040
2. Cantor, J. M. (2015). In his own words: Response to Moser [Editorial Commentary]. *Journal of Sexual Medicine, 12,* 2502–2503. doi: 10.1111/jsm.13075
3. Cantor, J. M. (2015). Purported changes in pedophilia as statistical artefacts: Comment on Müller et al. (2014). *Archives of Sexual Behavior, 44,* 253–254. doi: 10.1007/s10508-014-0343-x
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7. Cantor, J. M. (2012). The errors of Karen Franklin's *Pretextuality* [Commentary]. *International Journal of Forensic Mental Health, 11,* 59–62. doi: 10.1080/14999013.2012.672945
8. Cantor, J. M., & Blanchard, R. (2012). White matter volumes in pedophiles, hebephiles, and teleiophiles [Letter to the Editor]. *Archives of Sexual Behavior, 41, 749–752.* doi: 10.1007/s10508-012-9954-2
9. Cantor, J. M. (2011). New MRI studies support the Blanchard typology of male-to-female transsexualism [Letter to the Editor]. *Archives of Sexual Behavior, 40*, 863–864. doi: 10.1007/s10508-011-9805-6
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11. Cantor, J. M. (2003, Summer). Review of the book *The Man Who Would Be Queen* by J. Michael Bailey. *Newsletter of Division 44 of the American Psychological Association, 19*(2), 6.
12. Cantor, J. M. (2003, Spring). What are the hot topics in LGBT research in psychology? *Newsletter of Division 44 of the American Psychological Association, 19*(1), 21–24.
13. Cantor, J. M. (2002, Fall). Male homosexuality, science, and pedophilia. *Newsletter of Division 44 of the American Psychological Association, 18*(3), 5–8.
14. Cantor, J. M. (2000). Review of the book *Sexual Addiction: An Integrated Approach. Journal of Sex and Marital Therapy, 26*, 107–109.

EDITORIALS

1. Cantor, J. M. (2012). Editorial. *Sexual Abuse: A Journal of Research and Treatment, 24*.

2. Cantor, J. M. (2011). Editorial note. *Sexual Abuse: A Journal of Research and Treatment, 23,* 414.
3. Barbaree, H. E., & Cantor, J. M. (2010). Performance indicates for *Sexual Abuse: A Journal of Research and Treatment* (SAJRT) [Editorial]. *Sexual Abuse: A Journal of Research and Treatment, 22,* 371–373.
4. Barbaree, H. E., & Cantor, J. M. (2009). *Sexual Abuse: A Journal of Research and Treatment* performance indicators for 2007 [Editorial]. *Sexual Abuse: A Journal of Research and Treatment, 21,* 3–5.
5. Zucker, K. J., & Cantor, J. M. (2009). Cruising: Impact factor data [Editorial]. *Archives of Sexual Research, 38,* 878–882.
6. Barbaree, H. E., & Cantor, J. M. (2008). Performance indicators for *Sexual Abuse: A Journal of Research and Treatment* [Editorial]. *Sexual Abuse: A Journal of Research and Treatment, 20,* 3–4.
7. Zucker, K. J., & Cantor, J. M. (2008). The *Archives* in the era of online first ahead of print[Editorial]. *Archives of Sexual Behavior, 37,* 512–516.
8. Zucker, K. J., & Cantor, J. M. (2006). The impact factor: The *Archives* breaks from the pack [Editorial]. *Archives of Sexual Behavior, 35,* 7–9.
9. Zucker, K. J., & Cantor, J. M. (2005). The impact factor: “Goin’ up” [Editorial]. *Archives of Sexual Behavior, 34,* 7–9.
10. Zucker, K., & Cantor, J. M. (2003). The numbers game: The impact factor and all that jazz [Editorial]. *Archives of Sexual Behavior, 32,* 3–5.

FUNDING HISTORY

Principal Investigators:	Doug VanderLaan, Meng-Chuan Lai
Co-Investigators:	James M. Cantor, Megha Mallar Chakravarty, Nancy Lobaugh, M. Palmert, M. Skorska
Title:	*Brain function and connectomics following sex hormone treatment in adolescents experience gender dysphoria*
Agency:	Canadian Institutes of Health Research (CIHR), Behavioural Sciences-B-2
Funds:	$650,250 / 5 years (July, 2018)

Principal Investigator:	Michael C. Seto
Co-Investigators:	Martin Lalumière , James M. Cantor
Title:	*Are connectivity differences unique to pedophilia?*
Agency:	University Medical Research Fund, Royal Ottawa Hospital
Funds:	$50,000 / 1 year (January, 2018)

Principal Investigator:	Lori Brotto
Co-Investigators:	Anthony Bogaert, James M. Cantor, Gerulf Rieger
Title:	*Investigations into the neural underpinnings and biological correlates of asexuality*
Agency:	Natural Sciences and Engineering Research Council (NSERC), Discovery Grants Program
Funds:	$195,000 / 5 years (April, 2017)

Principal Investigator:	Doug VanderLaan
Co-Investigators:	Jerald Bain, James M. Cantor, Megha Mallar Chakravarty, Sofia Chavez, Nancy Lobaugh, and Kenneth J. Zucker
Title:	*Effects of sex hormone treatment on brain development: A magnetic resonance imaging study of adolescents with gender dysphoria*
Agency:	Canadian Institutes of Health Research (CIHR), Transitional Open Grant Program
Funds:	$952,955 / 5 years (September, 2015)

Principal Investigator:	James M. Cantor
Co-Investigators:	Howard E. Barbaree, Ray Blanchard, Robert Dickey, Todd A. Girard, Phillip E. Klassen, and David J. Mikulis
Title:	*Neuroanatomic features specific to pedophilia*
Agency:	Canadian Institutes of Health Research (CIHR)
Funds:	$1,071,920 / 5 years (October, 2008)

Principal Investigator:	James M. Cantor
Title:	*A preliminary study of fMRI as a diagnostic test of pedophilia*
Agency:	Dean of Medicine New Faculty Grant Competition, Univ. of Toronto
Funds:	$10,000 (July, 2008)

Principal Investigator:	James M. Cantor
Co-Investigator:	Ray Blanchard
Title:	*Morphological and neuropsychological correlates of pedophilia*
Agency:	Canadian Institutes of Health Research (CIHR)
Funds:	$196,902 / 3 years (April, 2006)

KEYNOTE AND INVITED ADDRESSES

1. Cantor, J. M. (2021, September 28). *No topic too tough for this expert panel: A year in review.* Plenary Session for the 40th Annual Research and Treatment Conference, Association for the Treatment of Sexual Abusers.
2. Cantor, J. M. (2019, May 1). *Introduction and Q&A for 'I, Pedophile.'* StopSO 2nd Annual Conference, London, UK.
3. Cantor, J. M. (2018, August 29). *Neurobiology of pedophilia or paraphilia? Towards a 'Grand Unified Theory' of sexual interests.* Keynote address to the International Association for the Treatment of Sexual Offenders, Vilnius, Lithuania.
4. Cantor, J. M. (2018, August 29). *Pedophilia and the brain: Three questions asked and answered.* Preconference training presented to the International Association for the Treatment of Sexual Offenders, Vilnius, Lithuania.
5. Cantor, J. M. (2018, April 13). *The responses to* I, Pedophile *from We, the people.* Keynote address to the Minnesota Association for the Treatment of Sexual Abusers, Minneapolis, Minnesota.
6. Cantor, J. M. (2018, April 11). *Studying atypical sexualities: From vanilla to* I, Pedophile. Full day workshop at the Minnesota Association for the Treatment of Sexual Abusers, Minneapolis, Minnesota.
7. Cantor, J. M. (2018, January 20). *How much sex is enough for a happy life?* Invited lecture to the University of Toronto Division of Urology Men's Health Summit, Toronto, Canada.
8. Cantor, J. M. (2017, November 2). Pedophilia as a phenomenon of the brain: Update of evidence and the public response. Invited presentation to the 7th annual SBC education event, Centre for Addiction and Mental Health, Toronto, Canada.
9. Cantor, J. M. (2017, June 9). Pedophilia being in the brain: The evidence and the public's reaction. Invited presentation to *SEXposium at the ROM: The science of love and sex,* Toronto, Canada.
10. Cantor, J. M., & Campea, M. (2017, April 20). *"I, Pedophile" showing and discussion.* Invited presentation to the 42nd annual meeting of the Society for Sex Therapy and Research, Montréal, Canada.
11. Cantor, J. M. (2017, March 1). *Functional and structural neuroimaging of pedophilia: Consistencies across methods and modalities.* Invited lecture to the Brain Imaging Centre, Royal Ottawa Hospital, Ottawa, Canada.
12. Cantor, J. M. (2017, January 26). *Pedophilia being in the brain: The evidence and the public reaction.* Inaugural keynote address to the University of Toronto Sexuality Interest Network, Toronto, Ontario, Canada.
13. Cantor, J. M. (2016, October 14). *Discussion of CBC's "I, Pedophile."* Office of the Children's Lawyer Educational Session, Toronto, Ontario, Canada.
14. Cantor, J. M. (2016, September 15). *Evaluating the risk to reoffend: What we know and what we don't.* Invited lecture to the Association of Ontario Judges, Ontario Court of Justice Annual Family Law Program, Blue Mountains, Ontario, Canada. [Private link only: https://vimeo.com/239131108/3387c80652]
15. Cantor, J. M. (2016, April 8). *Pedophilia and the brain: Conclusions from the second generation of research.* Invited lecture at the 10th annual Risk and Recovery Forensic Conference, Hamilton, Ontario.

16. Cantor, J. M. (2016, April 7). *Hypersexuality without the hyperbole.* Keynote address to the 10th annual Risk and Recovery Forensic Conference, Hamilton, Ontario.
17. Cantor, J. M. (2015, November). *No one asks to be sexually attracted to children: Living in Daniel's World.* Grand Rounds, Centre for Addiction and Mental Health. Toronto, Canada.
18. Cantor, J. M. (2015, August). *Hypersexuality: Getting past whether "it" is or "it" isn't.* Invited address at the 41st annual meeting of the International Academy of Sex Research. Toronto, Canada.
19. Cantor, J. M. (2015, July). *A unified theory of typical and atypical sexual interest in men: Paraphilia, hypersexuality, asexuality, and vanilla as outcomes of a single, dual opponent process.* Invited presentation to the 2015 Puzzles of Sexual Orientation conference, Lethbridge, AL, Canada.
20. Cantor, J. M. (2015, June). *Hypersexuality.* Keynote Address to the Ontario Problem Gambling Provincial Forum. Toronto, Canada.
21. Cantor, J. M. (2015, May). *Assessment of pedophilia: Past, present, future.* Keynote Address to the International Symposium on Neural Mechanisms Underlying Pedophilia and Child Sexual Abuse (NeMUP). Berlin, Germany.
22. Cantor, J. M. (2015, March). *Prevention of sexual abuse by tackling the biggest stigma of them all: Making sex therapy available to pedophiles.* Keynote address to the 40th annual meeting of the Society for Sex Therapy and Research, Boston, MA.
23. Cantor, J. M. (2015, March. *Pedophilia: Predisposition or perversion?* Panel discussion at Columbia University School of Journalism. New York, NY.
24. Cantor, J. M. (2015, February). *Hypersexuality.* Research Day Grand Rounds presentation to Ontario Shores Centre for Mental Health Sciences, Whitby, Ontario, Canada.
25. Cantor, J. M. (2015, January). *Brain research and pedophilia: What it means for assessment, research, and policy.* Keynote address to the inaugural meeting of the Netherlands Association for the Treatment of Sexual Abusers, Utrecht, Netherlands.
26. Cantor, J. M. (2014, December). *Understanding pedophilia and the brain: Implications for safety and society.* Keynote address for The Jewish Community Confronts Violence and Abuse: Crisis Centre for Religious Women, Jerusalem, Israel.
27. Cantor, J. M. (2014, October). *Understanding pedophilia & the brain.* Invited full-day workshop for the Sex Offender Assessment Board of Pennsylvania, Harrisburg, PA.
28. Cantor, J. M. (2014, September). *Understanding neuroimaging of pedophilia: Current status and implications.* Invited lecture presented to the Mental Health and Addition Rounds, St. Joseph's Healthcare, Hamilton, Ontario, Canada.
29. Cantor, J. M. (2014, June). *An evening with Dr. James Cantor.* Invited lecture presented to the Ontario Medical Association, District 11 Doctors' Lounge Program, Toronto, Ontario, Canada.
30. Cantor, J. M. (2014, April). *Pedophilia and the brain.* Invited lecture presented to the University of Toronto Medical Students lunchtime lecture. Toronto, Ontario, Canada.
31. Cantor, J. M. (2014, February). *Pedophilia and the brain: Recap and update.* Workshop presented at the 2014 annual meeting of the Washington State Association for the Treatment of Sexual Abusers, Cle Elum, WA.
32. Cantor, J. M., Lafaille, S., Hannah, J., Kucyi, A., Soh, D., Girard, T. A., & Mikulis, D. M. (2014, February). *Functional connectivity in pedophilia.* Neuropsychiatry Rounds, Toronto Western Hospital, Toronto, Ontario, Canada.

33. Cantor, J. M. (2013, November). *Understanding pedophilia and the brain: The basics, the current status, and their implications.* Invited lecture to the Forensic Psychology Research Centre, Carleton University, Ottawa, Canada.
34. Cantor, J. M. (2013, November). *Mistaking puberty, mistaking hebephilia.* Keynote address presented to the 32nd annual meeting of the Association for the Treatment of Sexual Abusers, Chicago, IL.
35. Cantor, J. M. (2013, October). *Understanding pedophilia and the brain: A recap and update.* Invited workshop presented at the 32nd annual meeting of the Association for the Treatment of Sexual Abusers, Chicago, IL.
36. Cantor, J. M. (2013, October). *Compulsive-hyper-sex-addiction: I don't care what we all it, what can we* do*?* Invited address presented to the Board of Examiners of Sex Therapists and Counselors of Ontario, Toronto, Ontario, Canada.
37. Cantor, J. M. (2013, September). *Neuroimaging of pedophilia: Current status and implications.* McGill University Health Centre, Department of Psychiatry Grand Rounds presentation, Montréal, Québec, Canada.
38. Cantor, J. M. (2013, April). *Understanding pedophilia and the brain.* Invited workshop presented at the 2013 meeting of the Minnesota Association for the Treatment of Sexual Abusers, Minneapolis, MN.
39. Cantor, J. M. (2013, April). *The neurobiology of pedophilia and its implications for assessment, treatment, and public policy.* Invited lecture at the 38th annual meeting of the Society for Sex Therapy and Research, Baltimore, MD.
40. Cantor, J. M. (2013, April). *Sex offenders: Relating research to policy.* Invited roundtable presentation at the annual meeting of the Academy of Criminal Justice Sciences, Dallas, TX.
41. Cantor, J. M. (2013, March). *Pedophilia and brain research: From the basics to the state-of-the-art.* Invited workshop presented to the annual meeting of the Forensic Mental Health Association of California, Monterey, CA.
42. Cantor, J. M. (2013, January). *Pedophilia and child molestation.* Invited lecture presented to the Canadian Border Services Agency, Toronto, Ontario, Canada.
43. Cantor, J. M. (2012, November). *Understanding pedophilia and sexual offenders against children: Neuroimaging and its implications for public safety.* Invited guest lecture to University of New Mexico School of Medicine Health Sciences Center, Albuquerque, NM.
44. Cantor, J. M. (2012, November). *Pedophilia and brain research.* Invited guest lecture to the annual meeting of the Circles of Support and Accountability, Toronto, Ontario, Canada.
45. Cantor, J. M. (2012, January). *Current findings on pedophilia brain research.* Invited workshop at the San Diego International Conference on Child and Family Maltreatment, San Diego, CA.
46. Cantor, J. M. (2012, January). *Pedophilia and the risk to re-offend.* Invited lecture to the Ontario Court of Justice Judicial Development Institute, Toronto, Ontario, Canada.
47. Cantor, J. M. (2011, November). *Pedophilia and the brain: What it means for assessment, treatment, and policy.* Plenary Lecture presented at the Association for the Treatment of Sexual Abusers, Toronto, Ontario, Canada.
48. Cantor, J. M. (2011, July). *Towards understanding contradictory findings in the neuroimaging of pedophilic men.* Keynote address to 7th annual conference on Research in Forensic Psychiatry, Regensberg, Germany.

49. Cantor, J. M. (2011, March). *Understanding sexual offending and the brain: Brain basics to the state of the art.* Workshop presented at the winter conference of the Oregon Association for the Treatment of Sexual Abusers, Oregon City, OR.
50. Cantor, J. M. (2010, October). *Manuscript publishing for students.* Workshop presented at the 29th annual meeting of the Association for the Treatment of Sexual Abusers, Phoenix, AZ.
51. Cantor, J. M. (2010, August). *Is sexual orientation a paraphilia?* Invited lecture at the International Behavioral Development Symposium, Lethbridge, Alberta, Canada.
52. Cantor, J. M. (2010, March). *Understanding sexual offending and the brain: From the basics to the state of the art.* Workshop presented at the annual meeting of the Washington State Association for the Treatment of Sexual Abusers, Blaine, WA.
53. Cantor, J. M. (2009, January). *Brain structure and function of pedophilia men.* Neuropsychiatry Rounds, Toronto Western Hospital, Toronto, Ontario.
54. Cantor, J. M. (2008, April). *Is pedophilia caused by brain dysfunction?* Invited address to the University-wide Science Day Lecture Series, SUNY Oswego, Oswego, NY.
55. Cantor, J. M., Kabani, N., Christensen, B. K., Zipursky, R. B., Barbaree, H. E., Dickey, R., Klassen, P. E., Mikulis, D. J., Kuban, M. E., Blak, T., Richards, B. A., Hanratty, M. K., & Blanchard, R. (2006, September). *MRIs of pedophilic men.* Invited presentation at the 25th annual meeting of the Association for the Treatment of Sexual Abusers, Chicago.
56. Cantor, J. M., Blanchard, R., & Christensen, B. K. (2003, March). *Findings in and implications of neuropsychology and epidemiology of pedophilia.* Invited lecture at the 28th annual meeting of the Society for Sex Therapy and Research, Miami.
57. Cantor, J. M., Christensen, B. K., Klassen, P. E., Dickey, R., & Blanchard, R. (2001, July). *Neuropsychological functioning in pedophiles.* Invited lecture presented at the 27th annual meeting of the International Academy of Sex Research, Bromont, Canada.
58. Cantor, J. M., Blanchard, R., Christensen, B., Klassen, P., & Dickey, R. (2001, February). *First glance at IQ, memory functioning and handedness in sex offenders.* Lecture presented at the Forensic Lecture Series, Centre for Addiction and Mental Health, Toronto, Ontario, Canada.
59. Cantor, J. M. (1999, November). *Reversal of SSRI-induced male sexual dysfunction: Suggestions from an animal model.* Grand Rounds presentation at the Allan Memorial Institute, Royal Victoria Hospital, Montréal, Canada.

PAPER PRESENTATIONS AND SYMPOSIA

1. Cantor, J. M. (2020, April). "I'd rather have a trans kid than a dead kid": Critical assessment of reported rates of suicidality in trans kids. *Paper presented at the annual meeting of the Society for the Sex Therapy and Research.* Online in lieu of in person meeting.
2. Stephens, S., Lalumière, M., Seto, M. C., & Cantor, J. M. (2017, October). *The relationship between sexual responsiveness and sexual exclusivity in phallometric profiles.* Paper presented at the annual meeting of the Canadian Sex Research Forum, Fredericton, New Brunswick, Canada.
3. Stephens, S., Cantor, J. M., & Seto, M. C. (2017, March). *Can the SSPI-2 detect hebephilic sexual interest?* Paper presented at the annual meeting of the American-Psychology Law Society Annual Meeting, Seattle, WA.
4. Stephens, S., Seto, M. C., Goodwill, A. M., & Cantor, J. M. (2015, October). *Victim choice polymorphism and recidivism.* Symposium Presentation. Paper presented at the 34th annual meeting of the Association for the Treatment of Sexual Abusers, Montréal, Canada.
5. McPhail, I. V., Hermann, C. A., Fernane, S. Fernandez, Y., Cantor, J. M., & Nunes, K. L. (2014, October). *Sexual deviance in sexual offenders against children: A meta-analytic review of phallometric research.* Paper presented at the 33rd annual meeting of the Association for the Treatment of Sexual Abusers, San Diego, CA.
6. Stephens, S., Seto, M. C., Cantor, J. M., & Goodwill, A. M. (2014, October). *Is hebephilic sexual interest a criminogenic need?: A large scale recidivism study.* Paper presented at the 33rd annual meeting of the Association for the Treatment of Sexual Abusers, San Diego, CA.
7. Stephens, S., Seto, M. C., Cantor, J. M., & Lalumière, M. (2014, October). *Development and validation of the Revised Screening Scale for Pedophilic Interests (SSPI–2).* Paper presented at the 33rd annual meeting of the Association for the Treatment of Sexual Abusers, San Diego, CA.
8. Cantor, J. M., Lafaille, S., Hannah, J., Kucyi, A., Soh, D., Girard, T. A., & Mikulis, D. M. (2014, September). *Pedophilia and the brain: White matter differences detected with DTI.* Paper presented at the 13th annual meeting of the International Association for the Treatment of Sexual Abusers, Porto, Portugal.
9. Stephens, S., Seto, M., Cantor, J. M., Goodwill, A. M., & Kuban, M. (2014, March). *The role of hebephilic sexual interests in sexual victim choice.* Paper presented at the annual meeting of the American Psychology and Law Society, New Orleans, LA.
10. McPhail, I. V., Fernane, S. A., Hermann, C. A., Fernandez, Y. M., Nunes, K. L., & Cantor, J. M. (2013, November). *Sexual deviance and sexual recidivism in sexual offenders against children: A meta-analysis.* Paper presented at the 32nd annual meeting of the Association for the Treatment of Sexual Abusers, Chicago, IL.
11. Cantor, J. M. (2013, September). *Pedophilia and the brain: Current MRI research and its implications.* Paper presented at the 21st annual World Congress for Sexual Health, Porto Alegre, Brazil. [Featured among Best Abstracts, top 10 of 500.]
12. Cantor, J. M. (Chair). (2012, March). *Innovations in sex research.* Symposium conducted at the 37th annual meeting of the Society for Sex Therapy and Research, Chicago.
13. Cantor, J. M., & Blanchard, R. (2011, August). fMRI versus phallometry in the diagnosis of pedophilia and hebephilia. In J. M. Cantor (Chair), *Neuroimaging of men's object*

preferences. Symposium presented at the 37th annual meeting of the International Academy of Sex Research, Los Angeles, USA.

14. Cantor, J. M. (Chair). (2011, August). *Neuroimaging of men's object preferences.* Symposium conducted at the 37th annual meeting of the International Academy of Sex Research, Los Angeles.
15. Cantor, J. M. (2010, October). A meta-analysis of neuroimaging studies of male sexual arousal. In S. Stolerú (Chair), *Brain processing of sexual stimuli in pedophilia: An application of functional neuroimaging.* Symposium presented at the 29th annual meeting of the Association for the Treatment of Sexual Abusers, Phoenix, AZ.
16. Chivers, M. L., Seto, M. C., Cantor, J. C., Grimbos, T., & Roy, C. (April, 2010). *Psychophysiological assessment of sexual activity preferences in women.* Paper presented at the 35th annual meeting of the Society for Sex Therapy and Research, Boston, USA.
17. Cantor, J. M., Girard, T. A., & Lovett-Barron, M. (2008, November). *The brain regions that respond to erotica: Sexual neuroscience for dummies.* Paper presented at the 51st annual meeting of the Society for the Scientific Study of Sexuality, San Juan, Puerto Rico.
18. Barbaree, H., Langton, C., Blanchard, R., & Cantor, J. M. (2007, October). *The role of age-at-release in the evaluation of recidivism risk of sexual offenders.* Paper presented at the 26th annual meetingof the Association for the Treatment of Sexual Abusers, San Diego.
19. Cantor, J. M., Kabani, N., Christensen, B. K., Zipursky, R. B., Barbaree, H. E., Dickey, R., Klassen, P. E., Mikulis, D. J., Kuban, M. E., Blak, T., Richards, B. A., Hanratty, M. K., & Blanchard, R. (2006, July). *Pedophilia and brain morphology.* Abstract and paper presented at the 32nd annual meeting of the International Academy of Sex Research, Amsterdam, Netherlands.
20. Seto, M. C., Cantor, J. M., & Blanchard, R. (2006, March). *Child pornography offending is a diagnostic indicator of pedophilia*. Paper presented at the 2006 annual meeting of the American Psychology-Law Society Conference, St. Petersburg, Florida.
21. Blanchard, R., Cantor, J. M., Bogaert, A. F., Breedlove, S. M., & Ellis, L. (2005, August). *Interaction of fraternal birth order and handedness in the development of male homosexuality.* Abstract and paper presented at the International Behavioral Development Symposium, Minot, North Dakota.
22. Cantor, J. M., & Blanchard, R. (2005, July). *Quantitative reanalysis of aggregate data on IQ in sexual offenders.* Abstract and poster presented at the 31st annual meeting of the International Academy of Sex Research, Ottawa, Canada.
23. Cantor, J. M. (2003, August). *Sex reassignment on demand: The clinician's dilemma.* Paper presented at the 111th annual meeting of the American Psychological Association, Toronto, Canada.
24. Cantor, J. M. (2003, June). *Meta-analysis of VIQ–PIQ differences in male sex offenders.* Paper presented at the Harvey Stancer Research Day, Toronto, Ontario, Canada.
25. Cantor, J. M. (2002, August). *Gender role in autogynephilic transsexuals: The more things change…* Paper presented at the 110th annual meeting of the American Psychological Association, Chicago.

26. Cantor, J. M., Christensen, B. K., Klassen, P. E., Dickey, R., & Blanchard, R. (2001, June). *IQ, memory functioning, and handedness in male sex offenders.* Paper presented at the Harvey Stancer Research Day, Toronto, Ontario, Canada.
27. Cantor, J. M. (1998, August). *Convention orientation for lesbian, gay, and bisexual students*. Papers presented at the 106th annual meeting of the American Psychological Association.
28. Cantor, J. M. (1997, August). *Discussion hour for lesbian, gay, and bisexual students*. Presented at the 105th annual meeting of the American Psychological Association.
29. Cantor, J. M. (1997, August). *Convention orientation for lesbian, gay, and bisexual students*. Paper presented at the 105th annual meeting of the American Psychological Association.
30. Cantor, J. M. (1996, August). *Discussion hour for lesbian, gay, and bisexual students*. Presented at the 104th annual meeting of the American Psychological Association.
31. Cantor, J. M. (1996, August). *Symposium: Question of inclusion: Lesbian and gay psychologists and accreditation*. Paper presented at the 104th annual meeting of the American Psychological Association, Toronto.
32. Cantor, J. M. (1996, August). *Convention orientation for lesbian, gay, and bisexual students*. Papers presented at the 104th annual meeting of the American Psychological Association.
33. Cantor, J. M. (1995, August). *Discussion hour for lesbian, gay, and bisexual students*. Presented at the 103rd annual meeting of the American Psychological Association.
34. Cantor, J. M. (1995, August). *Convention orientation for lesbian, gay, and bisexual students*. Papers presented at the 103rd annual meeting of the American Psychological Association.
35. Cantor, J. M. (1994, August). *Discussion hour for lesbian, gay, and bisexual students*. Presented at the 102nd annual meeting of the American Psychological Association.
36. Cantor, J. M. (1994, August). *Convention orientation for lesbian, gay, and bisexual students*. Papers presented at the 102nd annual meeting of the American Psychological Association.
37. Cantor, J. M., & Pilkington, N. W. (1992, August). *Homophobia in psychology programs: A survey of graduate students.* Paper presented at the Centennial Convention of the American Psychological Association, Washington, DC. (ERIC Document Reproduction Service No. ED 351 618)
38. Cantor, J. M. (1991, August). *Being gay and being a graduate student: Double the memberships, four times the problems*. Paper presented at the 99th annual meeting of the American Psychological Association, San Francisco.

POSTER PRESENTATIONS

1. Klein, L., Stephens, S., Goodwill, A. M., Cantor, J. M., & Seto, M. C. (2015, October). *The psychological propensities of risk in undetected sexual offenders.* Poster presented at the 34th annual meeting of the Association for the Treatment of Sexual Abusers, Montréal, Canada.
2. Pullman, L. E., Stephens, S., Seto, M. C., Goodwill, A. M., & Cantor, J. M. (2015, October). *Why are incest offenders less likely to recidivate?* Poster presented at the 34th annual meeting of the Association for the Treatment of Sexual Abusers, Montréal, Canada.
3. Seto, M. C., Stephens, S. M., Cantor, J. M., Lalumiere, M. L., Sandler, J. C., & Freeman, N. A. (2015, August). *The development and validation of the Revised Screening Scale for Pedophilic Interests (SSPI-2).* Poster presentation at the 41st annual meeting of the International Academy of Sex Research. Toronto, Canada.
4. Soh, D. W., & Cantor, J. M. (2015, August). *A peek inside a furry convention.* Poster presentation at the 41st annual meeting of the International Academy of Sex Research. Toronto, Canada.
5. VanderLaan, D. P., Lobaugh, N. J., Chakravarty, M. M., Patel, R., Chavez, S. Stojanovski, S. O., Takagi, A., Hughes, S. K., Wasserman, L., Bain, J., Cantor, J. M., & Zucker, K. J. (2015, August). *The neurohormonal hypothesis of gender dysphoria: Preliminary evidence of cortical surface area differences in adolescent natal females.* Poster presentation at the 31st annual meeting of the International Academy of Sex Research. Toronto, Canada.
6. Cantor, J. M., Lafaille, S. J., Moayedi, M., Mikulis, D. M., & Girard, T. A. (2015, June). *Diffusion tensor imaging (DTI) of the brain in pedohebephilic men: Preliminary analyses.* Harvey Stancer Research Day, Toronto, Ontario Canada.
7. Newman, J. E., Stephens, S., Seto, M. C., & Cantor, J. M. (2014, October). *The validity of the Static-99 in sexual offenders with low intellectual abilities.* Poster presentation at the 33rd annual meeting of the Association for the Treatment of Sexual Abusers, San Diego, CA.
8. Lykins, A. D., Walton, M. T., & Cantor, J. M. (2014, June). *An online assessment of personality, psychological, and sexuality trait variables associated with self-reported hypersexual behavior.* Poster presentation at the 30th annual meeting of the International Academy of Sex Research, Dubrovnik, Croatia.
9. Stephens, S., Seto, M. C., Cantor, J. M., Goodwill, A. M., & Kuban, M. (2013, November). *The utility of phallometry in the assessment of hebephilia.* Poster presented at the 32nd annual meeting of the Association for the Treatment of Sexual Abusers, Chicago.
10. Stephens, S., Seto, M. C., Cantor, J. M., Goodwill, A. M., & Kuban, M. (2013, October). *The role of hebephilic sexual interests in sexual victim choice.* Poster presented at the 32nd annual meeting of the Association for the Treatment of Sexual Abusers, Chicago.
11. Fazio, R. L., & Cantor, J. M. (2013, October). *Analysis of the Fazio Laterality Inventory (FLI) in a population with established atypical handedness.* Poster presented at the 33rd annual meeting of the National Academy of Neuropsychology, San Diego.
12. Lafaille, S., Hannah, J., Soh, D., Kucyi, A., Girard, T. A., Mikulis, D. M., & Cantor, J. M. (2013, August). *Investigating resting state networks in pedohebephiles.* Poster presented at the 29th annual meeting of the International Academy of Sex Research, Chicago.

13. McPhail, I. V., Lykins, A. D., Robinson, J. J., LeBlanc, S., & Cantor, J. M. (2013, August). *Effects of prescription medication on volumetric phallometry output.* Poster presented at the 29th annual meeting of the International Academy of Sex Research, Chicago.
14. Murray, M. E., Dyshniku, F., Fazio, R. L., & Cantor, J. M. (2013, August). *Minor physical anomalies as a window into the prenatal origins of pedophilia.* Poster presented at the 29th annual meeting of the International Academy of Sex Research, Chicago.
15. Sutton, K. S., Stephens, S., Dyshniku, F., Tulloch, T., & Cantor, J. M. (2013, August). *Pilot group treatment for "procrasturbation."* Poster presented at 39th annual meeting of the International Academy of Sex Research, Chicago.
16. Sutton, K. S., Pytyck, J., Stratton, N., Sylva, D., Kolla, N., & Cantor, J. M. (2013, August). *Client characteristics by type of hypersexuality referral: A quantitative chart review.* Poster presented at the 39th annual meeting of the International Academy of Sex Research, Chicago.
17. Fazio, R. L., & Cantor, J. M. (2013, June). *A replication and extension of the psychometric properties of the Digit Vigilance Test.* Poster presented at the 11th annual meeting of the American Academy of Clinical Neuropsychology, Chicago.
18. Lafaille, S., Moayedi, M., Mikulis, D. M., Girard, T. A., Kuban, M., Blak, T., & Cantor, J. M. (2012, July). *Diffusion Tensor Imaging (DTI) of the brain in pedohebephilic men: Preliminary analyses.* Poster presented at the 38th annual meeting of the International Academy of Sex Research, Lisbon, Portugal.
19. Lykins, A. D., Cantor, J. M., Kuban, M. E., Blak, T., Dickey, R., Klassen, P. E., & Blanchard, R. (2010, July). *Sexual arousal to female children in gynephilic men.* Poster presented at the 38th annual meeting of the International Academy of Sex Research, Prague, Czech Republic.
20. Cantor, J. M., Girard, T. A., Lovett-Barron, M., & Blak, T. (2008, July). *Brain regions responding to visual sexual stimuli: Meta-analysis of PET and fMRI studies.* Abstract and poster presented at the 34th annual meeting of the International Academy of Sex Research, Leuven, Belgium.
21. Lykins, A. D., Blanchard, R., Cantor, J. M., Blak, T., & Kuban, M. E. (2008, July). *Diagnosing sexual attraction to children: Considerations for DSM-V.* Poster presented at the 34th annual meeting of the International Academy of Sex Research, Leuven, Belgium.
22. Cantor, J. M., Blak, T., Kuban, M. E., Klassen, P. E., Dickey, R. and Blanchard, R. (2007, October). *Physical height in pedophilia and hebephilia.* Poster presented at the 26th annual meeting of the Association for the Treatment of Sexual Abusers, San Diego.
23. Cantor, J. M., Blak, T., Kuban, M. E., Klassen, P. E., Dickey, R. and Blanchard, R. (2007, August). *Physical height in pedophilia and hebephilia.* Abstract and poster presented at the 33rd annual meeting of the International Academy of Sex Research, Vancouver, Canada.
24. Puts, D. A., Blanchard, R., Cardenas, R., Cantor, J., Jordan, C. L., & Breedlove, S. M. (2007, August). *Earlier puberty predicts superior performance on male-biased visuospatial tasks in men but not women.* Abstract and poster presented at the 33rd annual meeting of the International Academy of Sex Research, Vancouver, Canada.
25. Seto, M. C., Cantor, J. M., & Blanchard, R. (2005, November). *Possession of child pornography is a diagnostic indicator of pedophilia.* Poster presented at the 24th annual meeting of the Association for the Treatment of Sexual Abusers, New Orleans.

26. Blanchard, R., Cantor, J. M., Bogaert, A. F., Breedlove. S. M., & Ellis, L. (2005, July). *Interaction of fraternal birth order and handedness in the development of male homosexuality.* Abstract and poster presented at the 31st annual meeting of the International Academy of Sex Research, Ottawa, Canada.
27. Cantor, J. M., & Blanchard, R. (2003, July). *The reported VIQ–PIQ differences in male sex offenders are artifactual?* Abstract and poster presented at the 29th annual meeting of the International Academy of Sex Research, Bloomington, Indiana.
28. Christensen, B. K., Cantor, J. M., Millikin, C., & Blanchard, R. (2002, February). *Factor analysis of two brief memory tests: Preliminary evidence for modality-specific measurement.* Poster presented at the 30th annual meeting of the International Neuropsychological Society, Toronto, Ontario, Canada.
29. Cantor, J. M., Blanchard, R., Paterson, A., Bogaert, A. (2000, June). *How many gay men owe their sexual orientation to fraternal birth order?* Abstract and poster presented at the International Behavioral Development Symposium, Minot, North Dakota.
30. Cantor, J. M., Binik, Y., & Pfaus, J. G. (1996, November). *Fluoxetine inhibition of male rat sexual behavior: Reversal by oxytocin*. Poster presented at the 26th annual meeting of the Society for Neurosciences, Washington, DC.
31. Cantor, J. M., Binik, Y., & Pfaus, J. G. (1996, June). *An animal model of fluoxetine-induced sexual dysfunction: Dose dependence and time course*. Poster presented at the 28th annual Conference on Reproductive Behavior, Montréal, Canada.
32. Cantor, J. M., O'Connor, M. G., Kaplan, B., & Cermak, L. S. (1993, June). *Transient events test of retrograde memory: Performance of amnestic and unimpaired populations*. Poster presented at the 2nd annual science symposium of the Massachusetts Neuropsychological Society, Cambridge, MA.

EDITORIAL AND PEER-REVIEWING ACTIVITIES

Editor-in-Chief

Sexual Abuse: A Journal of Research and Treatment Jan., 2010–Dec., 2014

Editorial Board Memberships

Journal of Sexual Aggression Jan., 2010–Dec., 2021
Journal of Sex Research, The Jan., 2008–Aug., 2020
Sexual Abuse: A Journal of Research and Treatment Jan., 2006–Dec., 2019
Archives of Sexual Behavior Jan., 2004–Present
The Clinical Psychologist Jan., 2004–Dec., 2005

Ad hoc Journal Reviewer Activity

American Journal of Psychiatry
Annual Review of Sex Research
Archives of General Psychiatry
Assessment
Biological Psychiatry
BMC Psychiatry
Brain Structure and Function
British Journal of Psychiatry
British Medical Journal
Canadian Journal of Behavioural Science
Canadian Journal of Psychiatry
Cerebral Cortex
Clinical Case Studies
Comprehensive Psychiatry
Developmental Psychology
European Psychologist
Frontiers in Human Neuroscience
Human Brain Mapping
International Journal of Epidemiology
International Journal of Impotence Research
International Journal of Sexual Health
International Journal of Transgenderism
Journal of Abnormal Psychology
Journal of Clinical Psychology
Journal of Consulting and Clinical Psychology
Journal of Forensic Psychology Practice
Journal for the Scientific Study of Religion
Journal of Sexual Aggression
Journal of Sexual Medicine
Journal of Psychiatric Research
Nature Neuroscience
Neurobiology Reviews
Neuroscience & Biobehavioral Reviews
Neuroscience Letters
Proceedings of the Royal Society B (Biological Sciences)
Psychological Assessment
Psychological Medicine
Psychological Science
Psychology of Men & Masculinity
Sex Roles
Sexual and Marital Therapy
Sexual and Relationship Therapy
Sexuality & Culture
Sexuality Research and Social Policy
The Clinical Psychologist
Traumatology
World Journal of Biological Psychiatry

GRANT REVIEW PANELS

2017–2021 Member, College of Reviewers, *Canadian Institutes of Health Research,* Canada.

2017 Committee Member, Peer Review Committee—Doctoral Research Awards A. *Canadian Institutes of Health Research*, Canada.

2017 Member, International Review Board, Research collaborations on behavioural disorders related to violence, neglect, maltreatment and abuse in childhood and adolescence. *Bundesministerium für Bildung und Forschung [Ministry of Education and Research],* Germany.

2016 Reviewer. National Science Center [*Narodowe Centrum Nauki*], Poland.

2016 Committee Member, Peer Review Committee—Doctoral Research Awards A. *Canadian Institutes of Health Research*, Canada.

2015 Assessor (Peer Reviewer). Discovery Grants Program. *Australian Research Council,* Australia.

2015 Reviewer. *Czech Science Foundation,* Czech Republic.

2015 Reviewer, "Off the beaten track" grant scheme. *Volkswagen Foundation,* Germany.

2015 External Reviewer, Discovery Grants program—Biological Systems and Functions. *National Sciences and Engineering Research Council of Canada*, Canada

2015 Committee Member, Peer Review Committee—Doctoral Research Awards A. *Canadian Institutes of Health Research*, Canada.

2014 Assessor (Peer Reviewer). Discovery Grants Program. *Australian Research Council,* Australia.

2014 External Reviewer, Discovery Grants program—Biological Systems and Functions. *National Sciences and Engineering Research Council of Canada*, Canada.

2014 Panel Member, Dean's Fund—Clinical Science Panel. *University of Toronto Faculty of Medicine*, Canada.

2014 Committee Member, Peer Review Committee—Doctoral Research Awards A. *Canadian Institutes of Health Research*, Canada.

2013 Panel Member, Grant Miller Cancer Research Grant Panel. *University of Toronto Faculty of Medicine*, Canada.

2013 Panel Member, Dean of Medicine Fund New Faculty Grant Clinical Science Panel. *University of Toronto Faculty of Medicine,* Canada.

2012 Board Member, International Review Board, Research collaborations on behavioural disorders related to violence, neglect, maltreatment and abuse in childhood and adolescence (2nd round). *Bundesministerium für Bildung und Forschung [Ministry of Education and Research],* Germany.

2012 External Reviewer, University of Ottawa Medical Research Fund. *University of Ottawa Department of Psychiatry*, Canada.

2012 External Reviewer, Behavioural Sciences—B. *Canadian Institutes of Health Research*, Canada.

2011 Board Member, International Review Board, Research collaborations on behavioural disorders related to violence, neglect, maltreatment and abuse in childhood and adolescence. *Bundesministerium für Bildung und Forschung [Ministry of Education and Research],* Germany.

TEACHING AND TRAINING

PostDoctoral Research Supervision
Law & Mental Health Program, Centre for Addiction and Mental Health, Toronto, Canada

Dr. Katherine S. Sutton	Sept., 2012–Dec., 2013
Dr. Rachel Fazio	Sept., 2012–Aug., 2013
Dr. Amy Lykins	Sept., 2008–Nov., 2009

Doctoral Research Supervision
Centre for Addiction and Mental Health, Toronto, Canada

Michael Walton • University of New England, Australia	Sept., 2017–Aug., 2018
Debra Soh • York University	May, 2013–Aug, 2017
Skye Stephens • Ryerson University	April, 2012–June, 2016

Masters Research Supervision
Centre for Addiction and Mental Health, Toronto, Canada

Nicole Cormier • Ryerson University	June, 2012–present
Debra Soh • Ryerson University	May, 2009–April, 2010

Undergraduate Research Supervision
Centre for Addiction and Mental Health, Toronto, Canada

Kylie Reale • Ryerson University	Spring, 2014
Jarrett Hannah • University of Rochester	Summer, 2013
Michael Humeniuk • University of Toronto	Summer, 2012

Clinical Supervision (Doctoral Internship)
Clinical Internship Program, Centre for Addiction and Mental Health, Toronto, Canada

Katherine S. Sutton • Queen's University	2011–2012
David Sylva • Northwestern University	2011–2012
Jordan Rullo • University of Utah	2010–2011
Lea Thaler • University of Nevada, Las Vegas	2010–2011
Carolin Klein • University of British Columbia	2009–2010
Bobby R. Walling • University of Manitoba	2009–2010

TEACHING AND TRAINING

Clinical Supervision (Doctoral- and Masters- level practica)
Centre for Addiction and Mental Health, Toronto, Canada

Tyler Tulloch • Ryerson University	2013–2014
Natalie Stratton • Ryerson University	Summer, 2013
Fiona Dyshniku • University of Windsor	Summer, 2013
Mackenzie Becker • McMaster University	Summer, 2013
Skye Stephens • Ryerson University	2012–2013
Vivian Nyantakyi • Capella University	2010–2011
Cailey Hartwick • University of Guelph	Fall, 2010
Tricia Teeft • Humber College	Summer, 2010
Allison Reeves • Ontario Institute for Studies in Education/Univ. of Toronto	2009–2010
Helen Bailey • Ryerson University	Summer, 2009
Edna Aryee • Ontario Institute for Studies in Education/Univ. of Toronto	2008–2009
Iryna Ivanova • Ontario Institute for Studies in Education/Univ. of Toronto	2008–2009
Jennifer Robinson • Ontario Institute for Studies in Education/Univ. of Toronto	2008–2009
Zoë Laksman • Adler School of Professional Psychology	2005–2006
Diana Mandelew • Adler School of Professional Psychology	2005–2006
Susan Wnuk • York University	2004–2005
Hiten Lad • Adler School of Professional Psychology	2004–2005
Natasha Williams • Adler School of Professional Psychology	2003–2004
Lisa Couperthwaite • Ontario Institute for Studies in Education/Univ. of Toronto	2003–2004
Lori Gray, née Robichaud • University of Windsor	Summer, 2003
Sandra Belfry • Ontario Institute for Studies in Education/Univ. of Toronto	2002–2003
Althea Monteiro • York University	Summer, 2002
Samantha Dworsky • York University	2001–2002
Kerry Collins • University of Windsor	Summer, 2001
Jennifer Fogarty • Waterloo University	2000–2001
Emily Cripps • Waterloo University	Summer, 2000
Lee Beckstead • University of Utah	2000

PROFESSIONAL SOCIETY ACTIVITIES

OFFICES HELD

2018–2019	Local Host. Society for Sex Therapy and Research.
2015	Member, International Scientific Committee, World Association for Sexual Health.
2015	Member, Program Planning and Conference Committee, Association for the Treatment of Sexual Abusers
2012–2013	Chair, Student Research Awards Committee, Society for Sex Therapy & Research
2012–2013	Member, Program Planning and Conference Committee, Association for the Treatment of Sexual Abusers
2011–2012	Chair, Student Research Awards Committee, Society for Sex Therapy & Research
2010–2011	Scientific Program Committee, International Academy of Sex Research
2002–2004	Membership Committee • APA Division 12 (Clinical Psychology)
2002–2003	Chair, Committee on Science Issues, APA Division 44
2002	Observer, Grant Review Committee • Canadian Institutes of Health Research Behavioural Sciences (B)
2001–2009	Reviewer • APA Division 44 Convention Program Committee
2001, 2002	Reviewer • APA Malyon-Smith Scholarship Committee
2000–2005	Task Force on Transgender Issues, APA Division 44
1998–1999	Consultant, APA Board of Directors Working Group on Psychology Marketplace
1997	Student Representative • APA Board of Professional Affairs' Institute on TeleHealth
1997–1998	Founder and Chair • APA/APAGS Task Force on New Psychologists' Concerns
1997–1999	Student Representative • APA/CAPP Sub-Committee for a National Strategy for Prescription Privileges
1997–1999	Liaison • APA Committee for the Advancement of Professional Practice
1997–1998	Liaison • APA Board of Professional Affairs
1993–1997	Founder and Chair • APA/APAGS Committee on LGB Concerns

PROFESSIONAL SOCIETY ACTIVITIES

MEMBERSHIPS

2017–2021 Member • *Canadian Sex Research Forum*

2009–Present Member • *Society for Sex Therapy and Research*

2006–Present Member (elected) • *International Academy of Sex Research*

2006–Present Research and Clinical Member • *Association for the Treatment of Sex Abusers*

2003–2006 Associate Member (elected) • *International Academy of Sex Research*

2002 Founding Member • CPA Section on Sexual Orientation and Gender Identity

2001–2013 Member • *Canadian Psychological Association* (CPA)

2000–2015 Member • *American Association for the Advancement of Science*

2000–2015 Member • *American Psychological Association* (APA)

APA Division 12 (Clinical Psychology)

APA Division 44 (Society for the Psychological Study of LGB Issues)

2000–2020 Member • *Society for the Scientific Study of Sexuality*

1995–2000 Student Member • *Society for the Scientific Study of Sexuality*

1993–2000 Student Affiliate • *American Psychological Association*

1990–1999 Member, American Psychological Association of Graduate Students (APAGS)

CLINICAL LICENSURE/REGISTRATION

Certificate of Registration, Number 3793
College of Psychologists of Ontario, Ontario, Canada

AWARDS AND HONORS

2017 Elected Fellow, Association for the Treatment of Sexual Abusers

2011 Howard E. Barbaree Award for Excellence in Research
Centre for Addiction and Mental Health, Law and Mental Health Program

2004 fMRI Visiting Fellowship Program at Massachusetts General Hospital
American Psychological Association Advanced Training Institute and NIH

1999–2001 CAMH Post-Doctoral Research Fellowship
Centre for Addiction and Mental Health Foundation and Ontario Ministry of Health

1998 Award for Distinguished Contribution by a Student
American Psychological Association, Division 44

1995 Dissertation Research Grant
Society for the Scientific Study of Sexuality

1994–1996 McGill University Doctoral Scholarship

1994 Award for Outstanding Contribution to Undergraduate Teaching
"TA of the Year Award," from the McGill Psychology Undergraduate Student Association

MAJOR MEDIA

(Complete list available upon request.)

Feature-length Documentaries

Vice Canada Reports. *Age of Consent.* 14 Jan 2017.
Canadian Broadcasting Company. *I, Pedophile.* Firsthand documentaries. 10 Mar 2016.

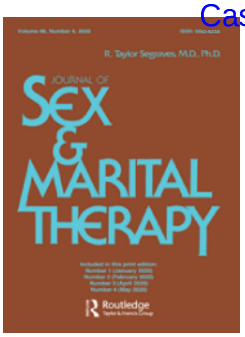
Appearances and Interviews

11 Mar 2020. Ibbitson, John. It is crucial that Parliament gets the conversion-therapy ban right. *The Globe & Mail.*
25 Jan 2020. Ook de hulpvaardige buurman kan verzamelaar van kinderporno zin. *De Morgen.*
3 Nov 2019. Village of the damned. *60 Minutes Australia.*
1 Nov 2019. HÅKON F. HØYDAL. Norsk nettovergriper: – Jeg hater meg selv: Nordmannen laster ned overgrepsmateriale fra nettet – og oppfordrer politiet til å gi amnesti for slike som ham.
10 Oct 2019. Smith, T. Growing efforts are looking at how—or if—#MeToo offenders can be reformed. *National Public Radio.*
29 Sep 2019. Carey, B. Preying on Children: The Emerging Psychology of Pedophiles. *New York Times.*
29 Apr 2019. Mathieu, Isabelle. La poupée qui a troublé les Terre-Neuviens. *La Tribune.*
21 Mar 2019. Pope Francis wants psychological testing to prevent problem priests. But can it really do that? *The Washington Post.*
12 Dec 2018. Child sex dolls: Illegal in Canada, and dozens seized at the border. Ontario Today with Rita Celli. *CBC.*
12 Dec 2018. Celli, R. & Harris, K. Dozens of child sex dolls seized by Canadian border agents. *CBC News.*
27 Apr 2018. Rogers, Brook A. The online 'incel' culture is real–and dangerous. *New York Post.*
25 Apr 2018. Yang, J. Number cited in cryptic Facebook post matches Alek Minassian's military ID: Source. *Toronto Star.*
24 Ap 2018 Understanding 'incel'. *CTV News.*
27 Nov 2017. Carey, B. Therapy for Sexual Misconduct? It's Mostly Unproven. *New York Times.*
14 Nov 2017. Tremonti, A. M. The Current. *CBC.*
9 Nov2017. Christensen, J. Why men use masturbation to harass women. *CNN.* http://www.cnn.com/2017/11/09/health/masturbation-sexual-harassment/index.html
7 Nov 2017. Nazaryan, A. Why is the alt-right obsessed with pedophilia? *Newsweek.*
15 Oct 2017. Ouatik, B. Déscouvre. Pédophilie et science. *CBC Radio Canada.*
12 Oct 2017. Ouatik, B. Peut-on guérir la pédophilie? *CBC Radio Canada.*
11 Sep 2017. Burns, C. The young paedophiles who say they don't abuse children. *BBC News.*
18 Aug 2017. Interview. *National Post Radio.* Sirius XM Canada.
16 Aug 2017. Blackwell, Tom. Man says he was cured of pedophilia at Ottawa clinic: 'It's like a weight that's been lifted': But skeptics worry about the impact of sending pedophiles into the world convinced their curse has been vanquished. *National Post.*
26 Apr 2017. Zalkind, S. Prep schools hid sex abuse just like the catholic church. *VICE.*
24 Apr 2017. Sastre, P. Pédophilie: une panique morale jamais n'abolira un crime. *Slate France.*
12 Feb 2017. Payette, G. Child sex doll trial opens Pandora's box of questions. *CBC News.*
26 Nov 2016. Det morke uvettet ["The unknown darkness]". *Fedrelandsvennen.*
13 July 2016. Paedophilia: Shedding light on the dark field. *The Economist.*

1 Jul 2016. Debusschere, B. Niet iedereen die kinderporno kijkt, is een pedofiel: De mythes rond pedofilie ontkracht. *De Morgen.*
12 Apr 2016. O'Connor, R. Terence Martin: The Tasmanian MP whose medication 'turned him into a paedophile'. *The Independent.*
8 Mar 2016. Bielski, Z. 'The most viscerally hated group on earth': Documentary explores how intervention can stop pedophiles. *The Globe and Mail.*
1 Mar 2016. Elmhirst, S. What should we do about paedophiles? *The Guardian.*
24 Feb 2016. The man whose brain tumour 'turned him into a paedophile'. *The Independent.*
24 Nov 2015. Byron, T. The truth about child sex abuse. *BBC Two.*
20 Aug 2015. The Jared Fogle case: Why we understand so little about abuse. *Washington Post.*
19 Aug 2015. Blackwell, T. Treat sex offenders for impotence—to keep them out of trouble, Canadian psychiatrist says. *National Post.*
2 Aug 2015. Menendez, J. BBC News Hour. *BBC World Service.*
13 Jul 2015. The nature of pedophilia. *BBC Radio 4.*
9 Jul 2015. The sex-offender test: How a computerized assessment can help determine the fate of men who've been accused of sexually abusing children. *The Atlantic.*
10 Apr 2015. NWT failed to prevent sex offender from abusing stepdaughter again. *CBC News.*
10 Feb 2015. Savage, D. "The ethical sadist." In Savage Love. *The Stranger.*
31 Jan 2015. Begrip voor/van pedofilie [Understanding pedophilia]. *de Volkskrant.*
9 Dec 2014. Carey, B. When a rapist's weapon is a pill. *New York Times*.
1 Dec 2014. Singal, J. Can virtual reality help pedophiles? *New York Magazine.*
17 Nov2014. Say pedófile, busco aydua. *El Pais.*
4 Sep 2014. Born that way? *Ideas, with Paul Kennedy.* CBC Radio One.
27 Aug 2014. Interrogating the statistics for the prevalence of paedophilia. BBC.
25 Jul 2014. Stephenson, W. The prevalence of paedophilia. *BBC World Service.*
21 Jul 2014. Hildebrandt, A. Virtuous Pedophiles group gives support therapy cannot. *CBC.*
26 Jan 2014. Paedophilia a result of faulty wiring, scientists suggest. *Daily Mail.*
22 Dec 2013. Kane, L. Is pedophilia a sexual orientation? *Toronto Star.*
21 Jul 2013. Miller, L. The turn-on switch: Fetish theory, post-Freud. *New York Magazine.*
1 Jul 2013. Morin, H. Pédophilie: la difficile quête d'une origine biologique. *Le Monde.*
2 Jun 2013. Malcolm, L. The psychology of paedophilia. *Australian National Radio.*
1 Mar 2013. Kay, J. The mobbing of Tom Flanagan is unwarranted and cruel. *National Post.*
6 Feb 2013. Boy Scouts board delays vote on lifting ban on gays. *L.A. Times.*
31 Aug 2012. CNN Newsroom interview with Ashleigh Banfield. *CNN.*
24 Jun 2012. CNN Newsroom interview with Don Lemon. *CNN.*

LEGAL TESTIMONY, PAST 5 YEARS

2022	Hersom & Doe v WVa Health & Human Services	Southern District, West Virginia
2022	BPJ v WVa Board of Education	Southern District, West Virginia
2021	Cross et al. v Loudoun School Board	Loudoun, Virginia
2021	Allan M. Josephson v Neeli Bendapudi	Western District of Kentucky
2021	Re Commitment of Michael Hughes (Frye Hearing)	Cook County, Illinois
2019	US vs Peter Bright	Southern Dist. of New York, NY
2019	Probate and Family Court (Custody Hearing)	Boston, Massachusetts
2019	Re Commitment of Steven Casper (Frye Hearing)	Kendall County, Illinois
2019	Re Commitment of Inger (Frye Hearing)	Poughkeepsie, New York
2018	Re Commitment of Fernando Little (Frye Hearing)	Utica, New York
2018	Canada vs John Fitzpatrick (Sentencing Hearing)	Toronto, Ontario, Canada



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James M. Cantor

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Transgender and Gender Diverse Children and Adolescents: Fact-Checking of AAP Policy

James M. Cantor

Toronto Sexuality Centre, Toronto, Canada

ABSTRACT

The American Academy of Pediatrics (AAP) recently published a policy statement: *Ensuring comprehensive care and support for transgender and gender-diverse children and adolescents*. Although almost all clinics and professional associations in the world use what's called the *watchful waiting* approach to helping gender diverse (GD) children, the AAP statement instead rejected that consensus, endorsing *gender affirmation* as the only acceptable approach. Remarkably, not only did the AAP statement fail to include any of the actual outcomes literature on such cases, but it also misrepresented the contents of its citations, which repeatedly said the very opposite of what AAP attributed to them.

The American Academy of Pediatrics (AAP) recently published a policy statement entitled, *Ensuring comprehensive care and support for transgender and gender-diverse children and adolescents* (Rafferty, AAP Committee on Psychosocial Aspects of Child and Family Health, AAP Committee on Adolescence, AAP Section on Lesbian, Gay, Bisexual, and Transgender Health and Wellness, 2018). These are children who manifest discontent with the sex they were born as and desire to live as the other sex (or as some alternative gender role). The policy was quite a remarkable document: Although almost all clinics and professional associations in the world use what's called the *watchful waiting* approach to helping transgender and gender diverse (GD) children, the AAP statement rejected that consensus, endorsing only *gender affirmation.* That is, where the consensus is to delay any transitions after the onset of puberty, AAP instead rejected waiting before transition. With AAP taking such a dramatic departure from other professional associations, I was immediately curious about what evidence led them to that conclusion. As I read the works on which they based their policy, however, I was pretty surprised—rather alarmed, actually: These documents simply did not say what AAP claimed they did. In fact, the references that AAP cited as the basis of their policy instead outright contradicted that policy, repeatedly endorsing *watchful waiting*.

The AAP statement was also remarkable in what it left out—namely, the actual outcomes research on GD children. In total, there have been 11 follow-up studies of GD children, of which AAP cited one (Wallien & Cohen-Kettenis, 2008), doing so without actually mentioning the outcome data it contained. The literature on outcomes was neither reviewed, summarized, nor subjected to meta-analysis to be considered in the aggregate—It was merely disappeared. (The list of all existing studies appears in the appendix.) As they make clear, *every* follow-up study of GD children, without exception, found the same thing: Over puberty, the majority of GD children cease to want to transition. AAP is, of course, free to establish whatever policy it likes on

CONTACT James Cantor jamescantorphd@gmail.com Toronto Sexuality Centre, 2 Carlton Street, suite 1820, Toronto, Ontario M5B 1J3, Canada.

whatever basis it likes. But any assertion that their policy is based on evidence is demonstrably false, as detailed below.

AAP divided clinical approaches into three types—conversion therapy, watchful waiting, and gender affirmation. It rejected the first two and endorsed *gender affirmation* as the only acceptable alternative. Most readers will likely be familiar already with attempts to use conversion therapy to change sexual orientation. With regard to gender identity, AAP wrote:

> "[C]onversion" or "reparative" treatment models are used to prevent children and adolescents from identifying as transgender or to dissuade them from exhibiting gender-diverse expressions. . . . Reparative approaches have been proven to be not only unsuccessful[38] but also deleterious and are considered outside the mainstream of traditional medical practice.[29,39–42]

The citations were:

38. Haldeman DC. The practice and ethics of sexual orientation conversion therapy. *J Consult Clin Psychol.* 1994;62(2):221–227.

29. Adelson SL; American Academy of Child and Adolescent Psychiatry (AACAP) Committee on Quality Issues (CQI). Practice parameter on gay, lesbian, or bisexual sexual orientation, gender nonconformity, and gender discordance in children and adolescents. *J Am Acad Child Adolesc Psychiatry.* 2012;51(9):957–974.

39. Byne W. Regulations restrict practice of conversion therapy. *LGBT Health.* 2016;3(2):97–99.

40. Cohen-Kettenis PT, Delemarrevan de Waal HA, Gooren LJ. The treatment of adolescent transsexuals: changing insights. *J Sex Med.* 2008;5(8):1892–1897.

41. Bryant K. Making gender identity disorder of childhood: historical lessons for contemporary debates. *Sex Res Soc Policy.* 2006;3(3):23–39.

42. World Professional Association for Transgender Health. *WPATH De-Psychopathologisation Statement.* Minneapolis, MN: World Professional Association for Transgender Health; 2010.

AAP's claims struck me as odd because *there are no studies of conversion therapy for gender identity.* Studies of conversion therapy have been limited to *sexual orientation,* and, moreover, to the sexual orientation *of adults,* not to gender identity and not of children in any case. The article AAP cited to support their claim (reference number 38) is indeed a classic and well-known review, but it is a review of sexual orientation research *only.* Neither gender identity, nor even children, received a single mention in it. Indeed, the narrower scope of that article should be clear to anyone reading even just its title: "The practice and ethics of *sexual orientation* conversion therapy" [italics added].

AAP continued, saying that conversion approaches for GD children have already been rejected by medical consensus, citing five sources. This claim struck me as just as odd, however—I recalled associations banning conversion therapy for sexual orientation, but not for gender identity, exactly because there is no evidence for generalizing from adult sexual orientation to childhood gender identity. So, I started checking AAP's citations for that, and these sources too pertained only to sexual orientation, not gender identity (specifics below). What AAP's sources *did* repeatedly emphasize was that:

A. Sexual orientation of adults is unaffected by conversion therapy and any other [known] intervention;
B. Gender dysphoria in childhood before puberty desists in the majority of cases, becoming (cis-gendered) homosexuality in adulthood, again regardless of any [known] intervention; and
C. Gender dysphoria in childhood persisting after puberty tends to persist entirely.

That is, in the context of GD children, it simply makes no sense to refer to externally induced "conversion": The majority of children "convert" to cisgender or "desist" from transgender

regardless of any attempt to change them. "Conversion" only makes sense with regard to adult sexual orientation because (unlike childhood gender identity), adult homosexuality never or nearly never spontaneously changes to heterosexuality. Although gender identity and sexual orientation may often be analogous and discussed together with regard to social or political values and to civil rights, they are nonetheless distinct—with distinct origins, needs, and responses to medical and mental health care choices. Although AAP emphasized to the reader that "gender identity is not synonymous with 'sexual orientation'" (Rafferty et al., 2018, p. 3), they went ahead to treat them as such nonetheless.

To return to checking AAP's fidelity to its sources: Reference 29 was a practice guideline from the Committee on Quality Issues of the American Academy of Child and Adolescent Psychiatry (AACAP). Despite AAP applying this source to *gender identity*, AACAP was quite unambiguous regarding their intent to speak to sexual orientation and *only* to sexual orientation*:* "Principle 6. Clinicians should be aware that there is no evidence that *sexual orientation* can be altered through therapy, and that attempts to do so may be harmful. There is no established evidence that change in a predominant, enduring *homosexual* pattern of development is possible. Although sexual fantasies can, to some degree, be suppressed or repressed by those who are ashamed of or in conflict about them, sexual desire is not a choice. However, behavior, social role, and—to a degree—identity and self-acceptance are. Although operant conditioning modifies sexual fetishes, it does not alter *homosexuality*. Psychiatric efforts to alter *sexual orientation* through 'reparative therapy' *in adults* have found little or no change in *sexual orientation,* while causing significant risk of harm to self-esteem" (AACAP, 2012, p. 967, italics added).

Whereas AAP cites AACAP to support gender affirmation as the only alternative for treating GD children, AACAP's actual view was decidedly neutral, noting the lack of evidence: "Given the lack of empirical evidence from randomized, controlled trials of the efficacy of treatment aimed at eliminating gender discordance, the potential risks of treatment, and longitudinal evidence that gender discordance persists in only a small minority of untreated cases arising in childhood, further research is needed on predictors of persistence and desistence of childhood gender discordance as well as the long-term risks and benefits of intervention before any treatment to eliminate gender discordance can be endorsed" (AACAP, 2012, p. 969). Moreover, whereas AAP rejected watchful waiting, what AACAP recommended was: "In general, it is desirable to help adolescents who may be experiencing gender distress and dysphoria to defer sex reassignment until adulthood" (AACAP, 2012, p. 969). So, not only did AAP attribute to AACAP something AACAP never said, but also AAP withheld from readers AACAP's actual view.

Next, in reference 39, Byne (2016) also addressed only sexual orientation, doing so very clearly: "Reparative therapy is a subset of conversion therapies based on the premise that *same-sex attraction* are reparations for childhood trauma. Thus, practitioners of reparative therapy believe that exploring, isolating, and repairing these childhood emotional wounds will often result in reducing *same-sex attractions*" (Byne, 2016, p. 97). Byne does not say this of gender identity, as the AAP statement misrepresents.

In AAP reference 40, Cohen-Kettenis et al. (2008) did finally pertain to gender identity; however, this article never mentions conversion therapy. (!) Rather, in this study, the authors presented that clinic's lowering of their minimum age for cross-sex hormone treatment from age 18 to 16, which they did on the basis of a series of studies showing the high rates of success with this age group. Although it did strike me as odd that AAP picked as support against conversion therapy an article that did not mention conversion therapy, I could imagine AAP cited the article as an example of what the "mainstream of traditional medical practice" consists of (the logic being that conversion therapy falls outside what an 'ideal' clinic like this one provides). However, what this clinic provides is the very *watchful waiting* approach that AAP rejected. The approach

espoused by Cohen-Kettenis (and the other clinics mentioned in the source—Gent, Boston, Oslo, and now formerly, Toronto) is to make puberty-halting interventions available at age 12 because: "[P]ubertal suppression may give adolescents, together with the attending health professional, more time to explore their gender identity, without the distress of the developing secondary sex characteristics. The precision of the diagnosis may thus be improved" (Cohen-Kettenis et al., 2008, p. 1894).

Reference 41 presented a very interesting history spanning the 1960s–1990s about how feminine boys and tomboyish girls came to be recognized as mostly pre-homosexual, and how that status came to be entered into the DSM at the same time as homosexuality was being *removed* from the DSM. Conversion therapy is never mentioned. Indeed, to the extent that Bryant mentions treatment at all, it is to say that treatment is entirely irrelevant to his analysis: "An important omission from the *DSM* is a discussion of the kinds of treatment that GIDC children should receive. (This omission is a general orientation of the DSM and not unique to GIDC)" (Bryant, 2006, p. 35). How this article supports AAP's claim is a mystery. Moreover, how AAP could cite a 2006 history discussing events of the 1990s and earlier to support a claim about the *current* consensus in this quickly evolving discussion remains all the more unfathomable.

Cited last in this section was a one-paragraph press release from the World Professional Association for Transgender Health. Written during the early stages of the American Psychiatric Association's (APA's) update of the DSM, the statement asserted simply that "The WPATH Board of Directors strongly urges the de-psychopathologisation of gender variance worldwide." Very reasonable debate can (and should) be had regarding whether gender dysphoria should be removed from the DSM as homosexuality was, and WPATH was well within its purview to assert that it should. Now that the DSM revision process is years completed however, history has seen that APA ultimately retained the diagnostic categories, rejecting WPATH's urging. This makes AAP's logic entirely backwards: That WPATH's request to depathologize gender dysphoria was *rejected* suggests that it is *WPATH's* view—and therefore the AAP policy—which fall "outside the mainstream of traditional medical practice." (!)

AAP based this entire line of reasoning on their belief that conversion therapy is being used "to prevent children and adolescents from identifying as transgender" (Rafferty et al., 2018, p. 4). That claim is left without citation or support. In contrast, what is said by AAP's sources is "delaying affirmation should *not* be construed as conversion therapy or an attempt to change gender identity" in the first place (Byne, 2016, p. 2). Nonetheless, AAP seems to be doing exactly that: simply relabeling any alternative approach as equivalent to conversion therapy.

Although AAP (and anyone else) may reject (what they label to be) conversion therapy purely on the basis of political or personal values, there is no evidence to back the AAP's stated claim about the existing science on gender identity at all, never mind gender identity of children.

AAP also dismissed the watchful waiting approach out of hand, not citing any evidence, but repeatedly calling it "outdated." The criticisms AAP provided, however, again defied the existing evidence, with even its own sources repeatedly calling watchful waiting the current standard. According to AAP:

> [G]ender affirmation is in contrast to the outdated approach in which a child's gender-diverse assertions are held as "possibly true" until an arbitrary age (often after pubertal onset) when they can be considered valid, an approach that authors of the literature have termed "watchful waiting." This outdated approach does not serve the child because critical support is withheld. Watchful waiting is based on binary notions of gender in which gender diversity and fluidity is pathologized; in watchful waiting, it is also assumed that notions of gender identity become fixed at a certain age. The approach is also influenced by a group of early studies with validity concerns, methodologic flaws, and limited follow-up on children who identified as TGD and, by adolescence, did not seek further treatment ("desisters").[45,47]

The citations from AAP's reference list are:

45. Ehrensaft D, Giammattei SV, Storck K, Tishelman AC, Keo-Meier C. Prepubertal social gender transitions: what we know; what we can learn—a view from a gender affirmative lens. *Int J Transgend.* 2018;19(2):251–268

47. Olson KR. Prepubescent transgender children: what we do and do not know. *J Am Acad Child Adolesc Psychiatry.* 2016;55(3):155–156.e3

I was surprised first by the AAP's claim that watchful waiting's delay to puberty was somehow "arbitrary." The literature, including AAP's sources, repeatedly indicated the pivotal importance of puberty, noting that outcomes strongly diverge at that point. According to AAP reference 29, in "*prepubertal* boys with gender discordance—including many without any mental health treatment—the cross gender wishes usually fade over time and do not persist into adulthood, with only 2.2% to 11.9% continuing to experience gender discordance" (Adelson & AACAP, 2012, p. 963, italics added), whereas "when gender variance with the desire to be the other sex is present *in adolescence,* this desire usually does persist through adulthood" (Adelson & AACAP, 2012, p. 964, italics added). Similarly, according to AAP reference 40, "Symptoms of GID *at prepubertal ages* decrease or even disappear in a considerable percentage of children (estimates range from 80–95%). Therefore, any intervention in childhood would seem premature and inappropriate. However, GID persisting *into early puberty* appears to be highly persistent" (Cohen-Kettenis et al., 2008, p. 1895, italics added). That follow-up studies of prepubertal transition differ from postpubertal transition is the very meaning of non-arbitrary. AAP gave readers exactly the reverse of what was contained in its own sources. If AAP were correct in saying that puberty is an arbitrarily selected age, then AAP will be able to offer another point to wait for with as much empirical backing as puberty has.

Next, it was not clear on what basis AAP could say that watchful waiting withholds support—AAP cited no support for its claim. The people in such programs often receive substantial support during this period. Also unclear is on what basis AAP could already know exactly which treatments are "critical" and which are not—Answering that question is the very purpose of this entire endeavor. Indeed, the logic of AAP's claim appears entirely circular: It is only if one were already pre-convinced that gender affirmation is the only acceptable alternative that would make watchful waiting seem to withhold critical support—What it delays is gender affirmation, the method one has already decided to be critical.

Although AAP's next claim did not have a citation appearing at the end of its sentence, binary notions of gender were mentioned both in references 45 and 47. Specifically, both pointed out that existing outcome studies have been about people transitioning from one sex to the other, rather than from one sex to an in-between status or a combination of masculine/feminine features. Neither reference presented this as a reason to reject the results from the existing studies of complete transition however (which is how AAP cast it). Although it is indeed true that the outcome data have been about complete transition, some future study showing that partial transition shows a different outcome would not invalidate what is known about complete transition. Indeed, data showing that partial transition gives better outcomes than complete transition would, once again, support the watchful waiting approach which AAP rejected.

Next was a vague reference alleging concerns and criticisms about early studies. Had AAP indicated what those alleged concerns and flaws were (or which studies they were), then it would be possible to evaluate or address them. Nonetheless, the argument is a red herring: Because all of the later studies showed the same result as did the early studies, any such allegation is necessarily moot.

Reference 47 was a one-and-a-half page commentary in which the author off-handedly mentions criticisms previously made of three of the eleven outcome studies of GD children, but does not provide any analysis or discussion. The only specific claim was that studies (whether early or late) had limited follow-up periods—the logic being that had outcome researchers lengthened the follow-up period, then people who seemed to have desisted might have returned to the clinic as

cases of "persistence-after-interruption." Although one could debate the merits of that prediction, AAP instead simply withheld from the reader the result from the original researchers having tested that very prediction directly: Steensma and Cohen-Kettenis (2015) conducted another analysis of their cohort, by then ages 19–28 (mean age 25.9 years), and found that 3.3% (5 people of the sample of 150) later returned. That is, in long-term follow-up, the childhood sample showed 66.7% desistence instead of 70.0% desistance.

Reference 45 did not support the claim that watchful-waiting is "outdated" either. Indeed, that source said the very opposite, explicitly referring to watchful waiting as the *current* approach: "Put another way, if clinicians are straying from SOC 7 guidelines for social transitions, not abiding by the watchful waiting model *favored by the standards,* we will have adolescents who have been consistently living in their affirmed gender since age 3, 4, or 5" (Ehrensaft et al., 2018, p. 255). Moreover, Ehrensaft et al. said there are cases in which they too would still use watchful waiting: "When a child's gender identity is unclear, the watchful waiting approach can give the child and their family time to develop a clearer understanding and is not necessarily in contrast to the needs of the child" (p. 259). Ehrensaft et al. are indeed critical of the watchful waiting model (which they feel is applied too conservatively), but they do not come close to the position the AAP policy espouses. Where Ehrensaft summaries the potential benefits and potential risks both to transitioning and not transitioning, the AAP presents an ironically binary narrative.

In its policy statement, AAP told neither the truth nor the whole truth, committing sins both of commission and of omission, asserting claims easily falsified by anyone caring to do any fact-checking at all. AAP claimed, "This policy statement is focused specifically on children and youth that identify as TGD rather than the larger LGBTQ population"; however, much of that evidence was about sexual orientation, not gender identity. AAP claimed, "Current available research and expert opinion from clinical and research leaders…will serve as the basis for recommendations" (pp. 1–2); however, they provided recommendations entirely unsupported and even in direct opposition to that research and opinion.

AAP is advocating for something far in excess of mainstream practice and medical consensus. In the presence of compelling evidence, that is just what is called for. The problems with Rafferty, however, do not constitute merely a misquote, a misinterpretation of an ambiguous statement, or a missing reference or two. Rather, AAP's statement is a systematic exclusion and misrepresentation of entire literatures. Not only did AAP fail to provide compelling evidence, it failed to provide the evidence at all. Indeed, AAP's recommendations are *despite* the existing evidence.

Disclosure statement

No potential conflict of interest was reported by the author.

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Wallien, M. S. C., & Cohen-Kettenis, P. T. (2008). Psychosexual outcome of gender-dysphoric children. *Journal of the American Academy of Child and Adolescent Psychiatry*, *47*, 1413–1423. doi:10.1097/CHI.0b013e31818956b9

Appendix

Count	Group	Study
2/16 4/16 10/16	gay* trans-/crossdress straight*/uncertain	Lebovitz, P. S. (1972). Feminine behavior in boys: Aspects of its outcome. *American Journal of Psychiatry, 128,* 1283–1289.
2/16 2/16 12/16	trans- uncertain gay	Zuger, B. (1978). Effeminate behavior present in boys from childhood: Ten additional years of follow-up. *Comprehensive Psychiatry, 19,* 363–369.
0/9 9/9	trans- gay	Money, J., & Russo, A. J. (1979). Homosexual outcome of discordant gender identity/role: Longitudinal follow-up. *Journal of Pediatric Psychology, 4,* 29–41.
2/45 10/45 33/45	trans-/crossdress uncertain gay	Zuger, B. (1984). Early effeminate behavior in boys: Outcome and significance for homosexuality. *Journal of Nervous and Mental Disease, 172,* 90–97.
1/10 2/10 3/10 4/10	trans- gay uncertain straight	Davenport, C. W. (1986). A follow-up study of 10 feminine boys. *Archives of Sexual Behavior, 15,* 511–517.
1/44 43/44	trans- cis-	Green, R. (1987). *The "sissy boy syndrome" and the development of homosexuality*. New Haven, CT: Yale University Press.
0/8 8/8	trans- cis-	Kosky, R. J. (1987). Gender-disordered children: Does inpatient treatment help? *Medical Journal of Australia, 146,* 565–569.
21/54 33/54	trans- cis-	Wallien, M. S. C., & Cohen-Kettenis, P. T. (2008). Psychosexual outcome of gender-dysphoric children. *Journal of the American Academy of Child and Adolescent Psychiatry, 47,* 1413–1423.
3/25 6/25 16/25	trans- lesbian/bi- straight	Drummond, K. D., Bradley, S. J., Badali-Peterson, M., & Zucker, K. J. (2008). A follow-up study of girls with gender identity disorder. *Developmental Psychology, 44,* 34–45.
17/139 122/139	trans- cis-	Singh, D. (2012). *A follow-up study of boys with gender identity disorder*. Unpublished doctoral dissertation, University of Toronto.
47/127 80/127	trans- cis-	Steensma, T. D., McGuire, J. K., Kreukels, B. P. C., Beekman, A. J., & Cohen-Kettenis, P. T. (2013). Factors associated with desistence and persistence of childhood gender dysphoria: A quantitative follow-up study. *Journal of the American Academy of Child and Adolescent Psychiatry, 52,* 582–590.

*For brevity, the list uses "gay" for "gay and cis-", "straight" for "straight and cis-", etc.

DOC. 69-3

DEFENDANT'S EXHIBIT 3

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER, *et al.*,	)	
Plaintiffs,	)	
v.	)	No. 2:22-cv-00184-LCB-SRW
KAY IVEY, in her official capacity as Governor of the State of Alabama, *et al.*,	)	
Defendants.	)	

DECLARATION OF MICHAEL K. LAIDLAW, M.D.

My name is Michael K. Laidlaw. I am over the age of 19, I am qualified to give this declaration, and, I have personal knowledge of the matters set forth herein.

I am a physician with specialties in endocrinology and internal medicine. I received a Bachelor of Science Degree in Biology with concentration in Molecular Cell Biology in 1997. I received my medical degree from the University of Southern California in 2001. I completed my residency in internal medicine at Los Angeles County/University of Southern California Medical Center in 2004. I also completed a fellowship in endocrinology, diabetes and metabolism at Los Angeles County/University of Southern California Medical Center in 2006.

The information provided regarding my professional background are detailed in my curriculum vitae attached as Exhibit A.

I have been practicing endocrinology in private practice in Rocklin, CA for the past 15 years. In my clinical practice as an endocrinologist, I evaluate patients with hormone excess, hormone deficiency, and other glandular disorders. These conditions result in numerous physical and psychological manifestations which I diagnose and treat.

I first began writing about gender dysphoria and the harms of gender affirmative therapy in a letter I sent to a local school board in Newcastle, California in January of 2018. I

voiced my concerns regarding misinformation and pertinent omissions in a book read in school entitled "I am Jazz" which is a children's book that discusses gender identity. These concerns were later published in The Public Discourse in an essay entitled "Gender Dysphoria and Children: An Endocrinologist's Evaluation of I am Jazz". (Laidlaw, 2018).

In 2019, I coauthored, along with four of my physician colleagues, a letter to the editor published in the Journal of Clinical Endocrinology and Metabolism, "Letter to the Editor: Endocrine Treatment of Gender-Dsyphoria/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline," in which we voiced our serious concerns with gender affirmative therapy (GAT) (Laidlaw, 2019).

In May of 2019 I spoke in the U.K.'s House of Lords at the invitation of Lord Lewis Moonie. The title of my speech was "Medical Harms Associated with the Hormonal and Surgical Therapy of Child and Adolescent Gender Dysphoria".

My recent publications include a letter to the editor of JCEM published in December 2021 "Erythrocytosis in a Large Cohort of Trans Men Using Testosterone: A Long-Term Follow-Up Study on Prevalence, Determinants, and Exposure Years."; "Gender affirmation surgery conclusion lacks evidence (letter)" published in the American Journal of Psychiatry in 2020; and "The Right to Best Care for Children Does Not Include the Right to Medical Transition" published in The American Journal of Bioethics in 2019. Other publications and Amicus Curiae Briefs are listed on my CV.

In the past four years, I have provided expert testimony in the following cases: JULIANA PAOLI v. JOSEPH HUDSON et al. heard in THE SUPERIOR COURT OF THE STATE OF CALIFORNIA, COUNTY OF TULARE. CASE NO. 279126. 2021;
United States District Court for the District of Arizona. DH and John Doe, Plaintiffs, vs. Jami Snyder, Director of the Arizona Health Care Cost Containment System, in her official capacity, Defendant. Case No. 4:20-cv-00335-SHR. 2020;
Supreme Court of British Columbia. File No. S2011599, Vancouver Registry. Between A.M. Plaintiff and Dr. F and Daniel McKee Defendants. 11/23/20 & 11/25/20;
and Court of Appeal File No. CA45940, Vancouver Registry. B.C. Canada. Supreme Court File No. E190334, between A.B. Respondent/Claimant, and C.D. Appellant/Respondent, and E.F. Respondent/Respondent. 24 Jun 2019.

I have been retained by Defendant in the above-captioned lawsuit to provide an expert opinion on the medical soundness of the Alabama Vulnerable Child Compassion and Protection Act. The opinions expressed are based on my experience and education, a

review of the complaint and expert reports submitted by the plaintiffs, and the literature cited below.

I am compensated at the rate of $450 per hour for my analysis, study, consultations, and preparation of expert reports, $650 per hour for testifying in court or deposition, and $250 per hour for travel. My compensation is not dependent upon the substance of my opinions or the outcome of the case.

A. Endocrine Disorders

Before discussing gender dysphoria and gender affirmative therapy from the perspective of an endocrinologist, it is helpful to discuss the background of endocrine diseases. This background demonstrates the difference in gender dysphoria, which is a psychological diagnosis, and other conditions treated by endocrinologists, which are physical diagnoses.

Endocrinology is the study of glands and hormones. Endocrine disorders can be divided into three main types: those that involve hormone excess, those that involve hormone deficiency, and those that involve structural abnormalities of the glands such as cancers.

It is important for the endocrinologist to determine the cause of hormone gland excess or deficiency in order to devise an appropriate treatment plan. The plan will generally be to help bring the hormones back into balance and thus bring the patient back to health.

To give an example of hormone excess, hyperthyroidism is a term which means overactivity of the thyroid gland. In this condition excess thyroid hormone is produced by the thyroid gland. This results in various physical and psychological changes for the afflicted patient. Examples of physical changes can include tachycardia or fast heart rate, hand tremors, and weight loss. Examples of psychological symptoms include anxiety, panic attacks, and sometimes even psychosis.

An endocrinologist can recognize thyroid hormone excess in part by signs and symptoms, but can also confirm the diagnosis with laboratory testing that shows the thyroid hormones to be out of balance. Once this is determined and the degree of excess is known, then treatments can be given to bring these levels back into balance to benefit the patient’s health and to prevent other disease effects caused by excess hormone.

To give another example, consider a deficiency of insulin. Insulin is a hormone which regulates blood glucose levels. If there is damage to the pancreas such that insulin levels are very low, then blood glucose levels will rise. If the glucose levels rise to a certain abnormally high level, then this is considered diabetes. In the case of type 1 diabetes, insulin levels are abnormally low and therefore blood glucose levels are abnormally high leading to a variety of signs and symptoms. For example, the patient may have extreme thirst, frequent urination, muscle wasting, and weight loss. They may often experience lethargy and weakness.

In this case laboratory tests of glucose and insulin levels can confirm the diagnosis. Once diabetes is confirmed, the patient is then treated with insulin to help restore glucose balance in the body and prevent long term complications of diabetes.

To give an example of a structural abnormality, a patient may have a lump on the thyroid gland in the neck. This may be further examined by an imaging test such as an ultrasound. A needle biopsy can be performed so that the cells can be examined under a microscope. A trained medical professional such as a pathologist can then examine the cells to determine if they are benign or cancerous. In the case of a thyroid cancer, a surgical procedure known as a thyroidectomy may be performed to remove the diseased thyroid gland in order to treat the cancer.

Noteworthy in the preceding three examples is that all three disease conditions are diagnosed by physical observations. In other words, a laboratory test of a hormone, an imaging test of an organ, an examination of cells under a microscope, or all three may be employed in the diagnosis of endocrine disease.

B. Gender Dysphoria is a Psychological Diagnosis

Gender dysphoria, on the other hand, is not an endocrine diagnosis, it is in fact a psychological diagnosis. It is diagnosed purely by psychological methods of behavioral observation and questioning.

Likewise what is termed gender identity is a psychological concept. It has no correlate in the human body. In the letter to the editor I wrote with my colleagues, discussed above, we wrote in our critique of the Endocrine Society Guidelines that "There are no laboratory, imaging, or other objective tests to diagnose a 'true transgender' child" (Laidlaw et al., 2019).

For example, one cannot do imaging of the human brain to find the gender identity. Likewise, there is no other imaging, laboratory tests, biopsy of tissue, autopsy of the

brain, or genetic testing that can identify the gender identity. There is no known gene that maps to gender identity or to gender dysphoria. In other words, there is no objective physical measure to identify either gender identity or gender dysphoria.

This is in contrast to all other endocrine disorders which have a measurable physical change in either hormone levels or gland structure which can be confirmed by physical testing. Therefore, gender dysphoria is a purely psychological phenomenon and not an endocrine disorder. But as my colleagues and I wrote in our letter to the editor, it becomes an endocrine condition through gender affirmative therapy: "Childhood gender dysphoria (GD) is not an endocrine condition, but it becomes one through iatrogenic puberty blockade (PB) and high-dose cross-sex (HDCS) hormones. The consequences of this gender-affirmative therapy (GAT) are not trivial and include potential sterility, sexual dysfunction, thromboembolic and cardiovascular disease, and malignancy" (Laidlaw, et al. 2019).

C. Gender Dysphoria and Desistance

Gender dysphoria is a persistent state of distress that stems from the feeling that one's gender identity does not align with their physical sex (American Psychiatric Association, 2013). It has been a relatively rare condition in children and adolescents. However there have been very significant increases in referrals for this condition noted around the globe.

For example, in the UK, "The number of referrals to GIDS [Gender Identity Development Service] has increased very significantly in recent years. In 2009, 97 children and young people were referred. In 2018 that number was 2519" (Bell v Tavistock Judgment, 2020). There has been suggestion from parental reports that this increase may be in part due to social contagion and fueled by social media/internet use (Littman, 2018).[1]

In “a study of the Finnish gender identity service, ‘75% of adolescents [assessed] had been or were currently undergoing child and adolescent psychiatric treatment for reasons other than gender dysphoria’ (Kaltiala-Heino, 2015). In fact, ‘68% had their first contact with psychiatric services due to other reasons than gender identity issues.’ The same study also showed that 26% percent had an autistic spectrum disorder and that a

[1] The French National Academy of Medicine wrote recently: "Parents addressing their children’s questions about transgender identity or associated distress should remain vigilant regarding the addictive role of excessive engagement with social media, which is both harmful to the psychological development of young people and is responsible for a very significant part of the growing sense of gender incongruence" (SEGM, 2022).

disproportionate number of females (87%) were presenting to the gender clinics compared to the past" (Laidlaw in gdworkinggroup.org, 2018).

Desistance is a term indicating that the child, adolescent, or adult who initially presented with gender incongruence has come to experience a realignment of their internal sense of gender and their physical body. "Children with [gender dysphoria] will outgrow this condition in 61% to 98% of cases by adulthood. There is currently no way to predict who will desist and who will remain dysphoric" (Laidlaw et al. 2019).

Because there is no physical marker to diagnose gender identity, and because it is not possible to predict which child or adolescent will desist, it is not possible to know which young person will remain transgender identified as adults. Also, because the rate of desistance is so high, gender affirmative therapy will necessarily cause serious and irreversible harms to many children and adolescents.

D. Biological Sex in Contrast to Gender Identity

Biological sex is the objective physical condition of having organs and body parts which correspond to a binary sex. There are only two physical sexes, male and female. The male is identified as having organs and tissues such as the penis, testicles and scrotum. The female sex is identified by having organs and tissues such as the labia, vagina, uterus, and ovaries. Biological sex is easily identified by physical observation such that adults and even children of say four years old can identify the biological sex of a newborn baby.

This is in contrast to gender identity, which as mentioned does not exist in any physical sense. It is a subjective identification known only once a patient makes it known. It cannot be identified by any physical means, cannot be confirmed by any outside observer, and can change over time.

It is also noteworthy that the physical organs described above as representing biological sex have a physical genetic correlate. In other words, it is a well-established scientific fact that two X chromosomes identify the cells correlating to a female person, and an X and a Y chromosome correlate to a male person.

Sex is clearly identified in 99.98% of cases by chromosomal analysis (Sax, 2002). Sex is also clearly identified at birth in 99.98% of cases (Sax, 2002). Therefore, sex is a clear provable objective reality that can be identified through advanced testing such as karyotyping, or simple genital identification at birth by any layperson. The other 0.02%

of cases have some disorder of sexual development. These do not represent an additional sex or sexes, but simply a disorder on the way to binary sex development. These conditions are not related to the diagnosis of gender dysphoria.

1. Embryologic development

Another confirmation that there are only two biological sexes comes from what is known about embryologic development and fertilization. The biologic development of the human person begins with a gamete from a female termed an ovum or egg and a gamete from a biological male which is termed sperm. The fertilization of the egg by the sperm begins the process of human biological development. The cells of the fertilized ovum then multiply and the person undergoes the incredible changes of embryologic development.

It is noteworthy that the male sperm comes from the biological male and the female egg comes from the biological female. There is no other third or fourth or fifth type of gamete that exists to begin the development of the human person. This is consistent with the binary nature of human sex.

The sex binary of the human embryo is further developed between roughly weeks 8 to 12 of human development. There are two primitive structures present within the developing embryo called the Wolffian duct and Mullerian ducts (Larsen et al., 2003). The Wolffian ducts develop into substructures of the genitalia including the vas deferens and epididymis which belong exclusively to the male sex. For the female, the Mullerian ducts go on to form the uterus, fallopian tubes, cervix and upper one third of the vagina which belong exclusively to the female sex.

Significantly once the male structures are developed from Wolffian ducts, the Mullerian ducts are obliterated. This means that throughout the rest of embryological development the Mullerian ducts will not form into biological female structures. Likewise, in the female, the Wolffian ducts are destroyed by week 12 and will not form male structures at any point in the future.[2]

Thus we can see in very early development that the sex binary is imprinted physically not only in the chromosomes, but also on the very organs that the body produces. Additionally, the potential to develop organs of the opposite sex is eliminated. Thus, in the human being there are only two physical tracts that one may progress along, the one being male and the other being female.

[2] Excepting disorders of sexual development, which are unrelated to the diagnosis of gender dysphoria.

2. Pubertal development

As mentioned previously, at the time of birth an infant's sex is easily identified through observation of the genitalia. Corresponding internal structures could also be confirmed through imaging if needed.

In early childhood, some low level of sex hormones are produced by the sex glands. The male testes produce testosterone. The female ovaries produce primarily the hormone estrogen. These sex glands remain quiescent for the most part, producing low levels of sex hormones until the time of pubertal development.

Puberty is a time of development of the sex organs, body, brain and mind. There are well known changes in physical characteristics of the male such as growth of facial hair, deepening of the voice, and increasing size of the testicles and penis. Importantly the testicles will develop sperm under the influence of testosterone and become capable of ejaculation. Because of these changes, the male will become capable of fertilizing an egg. The inability to produce sperm sufficient to fertilize an egg is termed infertility.

For the female, pubertal development includes changes such as breast development, widening of the pelvis, and menstruation. The female will also begin the process of ovulation which is a part of the menstrual cycle and involves the release of an egg or eggs from the ovary. Once the eggs are released in a manner in which they can become fertilized by human sperm, the female is termed fertile. The inability to release ovum that can be fertilized is infertility. These concepts will become important later on when discussing puberty blockers and opposite sex hormones.

Puberty is also the time of social development when one changes schools appropriate for maturity such as middle school and high school. Groups of kids are placed together in such a way that they will develop with in concert their peers. This timing corresponds to the physical changes of sexual development during puberty.

It is psychologically important for similarly developing kids to be grouped together as they will have similar shared experiences and can continue to grow physically, emotionally, and psychologically through the dramatic changes that occur during puberty.

3. Tanner stages of development

From a medical perspective it is important to know the stage of pubertal development of the developing adolescent. This can be determined through a physical examination of the body. The female will have changes in breast characteristics and pubic hair development. Similarly, the male will have changes in testicular size and pubic hair development. These findings can be compared to the Tanner staging system which will allow the stage of puberty to be known.

Tanner stages are divided into five. Stage 1 is the pre-pubertal state before pubertal development of the child begins. Stage 5 is full adult sexual maturity. Stages 2 through 4 are various phases of pubertal development (Greenspan and Gardner, 2004).

Awareness of the Tanner stage of the developing adolescent is also useful to assess for maturation of sex organ development leading to fertility. For girls, menstruation and ovulation occurs about two years after Tanner stage 2 and will typically be at Tanner stage 4 or possibly 3 (Emmanuel and Boker, 2022). For boys, the first appearance of sperm is typically Tanner Stage 4 (Emmanuel and Bokor, 2022). If puberty is blocked before reaching these critical stages, the sex glands will be locked in a premature state and incapable of fertility.

These concepts will be very important later when discussing puberty blockers and opposite sex hormones.

4. Biological Sex Cannot Be Changed

It is not possible for a person to change from one biological sex to the other, and there is no technology that allows a biological male to become a biological female or vice-versa. It is not technologically possible at this time to change sex chromosomes; these will remain in every cell throughout life. It is not technologically possible to transform sex glands from one to the other. In other words, there are no hormones or other means currently known to change an ovary into a testicle or a testicle into an ovary.

Furthermore, as noted earlier, several of the sex specific structures (such as the epidymis of the male or uterus of the female) are produced early in embryological development from around weeks 8 to 12. The primitive ducts which lead to these organs of the opposite sex are obliterated. There is no known way to resuscitate these ducts and continue development of opposite sex structures.

It is also not possible to produce gametes of the opposite sex. In other words, there is not any known way to induce the testicles to produce eggs. Nor is there any known way to induce the ovaries to produce sperm. Therefore, creating conditions for a biological female to create sperm capable of fertilizing another ovum is impossible. Likewise in the human male testicle cannot be induced to create eggs. The induction of opposite sex fertility is impossible.

In fact, as I will discuss, gender affirming therapy actually leads to infertility and potential sterilization.

E. Iatrogenic Harms

The term iatrogenic is used in medicine to describe harms or newly created medical conditions that are the result of medications, surgeries, or even psychological treatments. In this section I will discuss the iatrogenic harms of “gender affirmative treatment,” which includes treatment addressed by Alabama’s law. Each of the four interventions which I will describe (social transition, puberty blockers, opposite sex hormones, and surgery) lead to iatrogenic harms to the patient. These harms will be described in detail below.

1. Gender Affirmative Therapy

The approaches to gender dysphoria may be divided into three main types. (Zucker, 2020). One is pyschosocial treatment that helps the young person align their internal sense of gender with their physical sex. Another would be to "watch and wait" and allow time and maturity to help the young person to align sex and gender through natural desistance. The third option, which is the focus of that which follows, is referred to as gender affirmative therapy.

Gender affirmative therapy (GAT) consists of psychosocial, medical, and surgical interventions that attempt to psychologically and medically alter the patient so that they come to believe that they may become similar to the physical sex which aligns with their gender identity (but not their biological sex) and thereby reduce gender dysphoria. GAT consists of four main parts: 1) social transition, 2) blocking normal puberty, 3) high dose opposite sex hormones, and 4) surgery of the genitalia and breasts.

The application of this medical therapy to minors is a fairly new intervention and is associated with a number of harms both known and unknown. GAT suffers from a lack

of a quality evidence-base, poorly performed studies, and ongoing unethical human experimentation.

2. Social transition

The first stage of gender affirmative therapy is termed social transition. Social transition is a psychological intervention. The child may be encouraged to adopt the type of clothing and mannerisms or behaviors which are sterotypical of the opposite sex within a culture. For example, in the United States a boy might wear his hair long and wear dresses in order to socially transition. A girl may cut her hair short and wear clothes from the boys' section of a department store.

Social transition has been noted by expert researcher in the field of child gender dysphoria, Ken Zucker, to itself be a form of iatrogenic harm (Zucker, 2020). This insofar as the social transition process may solidify the young person's belief that they are in fact the sex opposite of that which was identified at birth.

It is easy to see why in the child's mind, by having the outward appearance of the opposite sex, that they would believe that they should have been destined to go through puberty of the opposite sex as they have only a poor understanding of the internal structures of the body, the function of the sex glands, the role of the sex glands in fertility and so forth.

Therefore, it would be quite frightening for a boy who believes he is a girl to be turning into a man with all of the adult features that accompany manhood. Vice versa, the girl who has become convinced that she is a boy will be frightened by the physical changes brought on by womanhood.

This is evident in the declaration of Megan Poe where she states: “Seeing Allison’s response to the Alabama legislature’s consideration of the Act and knowing how afraid she is of male puberty” (Megan Poe Declaration, 2022).

In fact it would appear that in the minds of the children and adolescents that they are anticipating a sort of disease state in the future by the hormone changes that will occur as a normal and natural part of human development. Until relatively recently in human history, it has not been possible to block puberty through pharmaceutical means.

3. Puberty blocking medication

The second step of the gender affirmative therapy model involves blocking normal pubertal development.

In order to understand what is occurring in this process, it is helpful to be aware of normal hormone function during pubertal development.

There is a small pea-sized gland in the brain called the pituitary. It is sometimes referred to as the "master gland" as it controls the function of several other glands. One key function for our purposes is the control of the sex glands. There are two specific hormones produced by the pituitary referred to as luteinizing hormone (LH) and follicle stimulating hormone (FSH). These are responsible for sex hormone production and fertility. The LH and FSH act as signals to tell the sex glands begin or continue their function.

In the adult male, the production of LH will cause adult levels of testosterone to be produced by the testicles. In the adult female, the production of LH will cause adult levels of estrogen to be produced by the ovaries.

In early childhood, prior to the beginning of puberty, the pituitary function with respect to the sex glands is quiescent. However, during pubertal development LH will signal the testicle to increase testosterone production and this carries the boy through the stages of pubertal development into manhood. Likewise for the female, the interaction of LH with the ovaries increases estrogen production and carries the girl through the stages of development into womanhood.

There are conditions diagnosed by the endocrinologist which involve a disruption of this normal communication between the pituitary and the sex glands. There is a medical condition called hypogonadotropic hypogonadism. The meaning of this term is that the pituitary is not sending the hormonal signals (LH and FSH) to the sex glands and therefore the sex glands are unable to make their sex hormones. The result is hormonal deficiencies of LH, FSH, and either testosterone or estrogen.

If this condition occurs during puberty, the effect will be to stop pubertal development. This is a disease state which is diagnosed and treated by the endocrinologist.

Medications such as GnRH agonists[3] act on the pituitary gland to lower the pituitary release of LH and FSH levels dramatically. The result is a blockage of the signaling of

[3] Gonadotropin Releasing Hormone agonists

the pituitary to the testicles or ovaries and therefore underproduction of the sex hormones. There are a variety of uses for GnRH agonists. The use and outcome can be very different for different applications.

For example, the initial development of the medication called Lupron was for the treatment of prostate cancer. The idea being that blocking pituitary hormones will block the adult male's release of testosterone from the testicles. Since testosterone will promote the growth of prostate cancer, the idea is to lower testosterone levels to a very low amount and therefore prevent the growth and spread of prostate cancer. This is a labeled use of the medication. In other words, there is FDA approval for this use.

Another labeled use of GnRH agonist medication is for the treatment of central precocious puberty. In the disease state of central precocious puberty, pituitary signaling is activated at an abnormally young age, say age four, to begin pubertal development. In order to halt puberty which has begun at an abnormally early time, a GnRH agonist may be used. Here the action of the medication on the pituitary will disrupt the signaling to the sex glands, stop early sex hormone production, and therefore stop abnormal pubertal development.

Then, at a more normal time of pubertal development, say age 11, the medication is stopped and puberty is allowed to proceed.[4] The end result is to restore normal sex gland function and timing of puberty. This is a labeled use for a GnRH agonist medication.

What about the use of puberty blockers such as Lupron in gender affirmative therapy? In these cases, we have physiologically normal children who are just beginning puberty or are somewhere in the process of pubertal development. They have healthy pituitary glands and sex organs. However, a puberty blocking medication is administered to stop normal pubertal development.

In this case the condition of hypogonadotropic hypogonadism described above is induced medically and is an iatrogenic effect of treating the psychological condition of gender dysphoria. GnRH agonist medications have not been FDA approved for this use.

[4] Once the medication is discontinued, it will take a number of months to a year or longer for the pituitary to regain its usual function.

4. Adverse Health Consequences of Blocking Normal Puberty

There are a number of serious health consequences that occur as the result of blocking normal puberty. The first problem is infertility. The Endocrine Society Guidelines recommend beginning puberty blockers as early as Tanner stage 2. As discussed earlier, this is the very beginning of puberty. Fertility development happens later generally in Tanner stage 4. One can see that if the developing person is blocked at Tanner stage 2 or 3 as advocated by the guidelines, this is prior to becoming fertile. The gonads will remain in an immature, undeveloped state.

This is why the guidelines refer to fertility preservation. However, studies show that less than 5% of adolescents receiving GAT even attempt fertility preservation (Nahata, 2017). Also fertility preservation for persons with immature ovaries and testicles is much more complicated, expensive and in many cases still experimental (Laidlaw, Cretella, et al. 2019).

Naturally, these children are at a developmental age where they are not thinking about adult related concepts such as having children as they are children themselves. This is only natural and to be expected. The medical problem imposed on them is that if they remain blocked in an early pubertal stage then even the addition of opposite sex hormones will not allow for the development of fertility. In fact, high dose opposite sex hormones may permanently damage the immature sex organs leading to sterilization. Certainly the removal of the gonads, which will be discussed later, will ensure sterilization.

Another problem with blocking puberty at an early stage is sexual dysfunction. The child will continue their chronological age progression toward adulthood and yet remain with undeveloped genitalia. This will lead to sexual dysfunction including potential erectile dysfunction and inability to ejaculate and orgasm for of the male. For the female with undeveloped genitalia potential sexual dysfunction may include painful intercourse and impairment of orgasm.

The impairment of sexual function was evident in the TLC reality show "I am Jazz". In the show Jazz who was identified male at birth has been given puberty blockers at an early pubertal stage. In an episode where Jazz visits a surgeon and has a discussion about sexual function, Jazz states: “I haven’t experienced any sexual sensation.” Regarding orgasm, Jazz says: “I don’t know, I haven’t experienced it”[5] (TLC, accessed 2022).

[5] Jazz's age is somewhere in the mid-teens during this episode.

In addition to direct effects on the developing genitalia and fertility there are other important aspects of puberty that are negatively affected. For example, puberty is a time of rapid bone development. This time of development is critical in attaining what we call peak bone density or the maximum bone density that one will acquire in their lifetime (Elhakeem, 2019).

Any abnormal lowering of sex hormones occurring during this critical time will stop the rapid accumulation of bone and therefore lower ultimate adult bone density. If a person does not achieve peak bone density, they would be expected to be at future risk for osteoporosis and the potential for debilitating spine and hip fractures as adults. Hip fractures for the older patient very significantly increase the risk of major morbidity and death (Bentler, 2009). Allowing a "pause" in puberty for any period of time leads to an inability to attain peak bone density.

Another consideration is maturation of the human brain. Much of what happens is actually unknown. However, “sex hormones including estrogen, progesterone, and testosterone can influence the development and maturation of the adolescent brain” (Arain, 2013). Therefore there are unknown, but likely negative consequences to blocking normal puberty with respect to brain development.

A third major problem with blocking normal puberty involves psychosocial development. Adolescence is a critical time of physical, mental, and emotional changes for the adolescent. It is important that they develop socially in conjunction with their peers. This is well recognized in the psychological literature: “For decades, scholars have pointed to peer relationships as one of the most important features of adolescence.” (Brown, 2009). If one is left behind for several years under the impression that they are awaiting opposite sex puberty, they will miss important opportunities for socialization and psychological development. Psychosocial development will be necessarily stunted as they are not developing with their peers. This is a permanent harm as the time cannot be regained.

Aside from the multiple serious problems that are iatrogenically acquired by blocking normal puberty, there appear to be independent risks of the puberty blocking medication themselves. For example, one can read the labeling of a common puberty blocking medication called Lupron Depot-Ped and find under psychiatric disorders: "emotional lability, such as crying, irritability, impatience, anger, and aggression. Depression, including rare reports of suicidal ideation and attempt. Many, but not all, of these patients had a history of psychiatric illness or other comorbidities with an increased risk of depression” (Lupron, 2022). This is particularly concerning given the high rate of psychiatric comorbidity with gender dysphoria discussed previously.

5. The Effect of Puberty Blockers on Desistance

As stated earlier a very high proportion of minors diagnosed with gender dysphoria will eventually desist or come to accept their physical sex. Puberty blockers have been shown to dramatically alter natural desistance.

In a Dutch study that included seventy adolescents who took puberty blockers, all seventy decided to go on to hormones of the opposite sex (de Vries, et al. 2011). In a follow-up study, the majority went on to have sex reassignment surgery by either vaginoplasty for males or hysterectomy with ovariectomy for females (de Vries, et al. 2014). These surgeries resulted in sterilization. This is why puberty blockers, rather than being a “pause” to consider aspects of mental health, are instead a pathway towards future sterilizing surgeries.

6. Opposite Sex Hormones

The third stage of gender affirmative therapy involves using hormones of the opposite sex at high doses to attempt to create secondary sex characteristics in the person's body. Before beginning I will describe FDA approved usages of estrogen and testosterone

a. Testosterone

Testosterone is an anabolic steroid of high potency. It is classified as a Schedule 3 controlled substance by the DEA: "Substances in this schedule have a potential for abuse less than substances in Schedules I or II and abuse may lead to moderate or low physical dependence or high psychological dependence" (DEA, 2022)

I prescribe testosterone to men for testosterone deficiency. The state of testosterone deficiency can cause various problems including problems of mood, sexual function, libido, and bone density. Prescription testosterone is given to correct the abnormally low levels and bring them back into balance.

Estrogen is the primary sex hormone of the female. Prescription estrogen may be used if a woman has low estrogen levels due to premature failure of her ovaries. Estrogen is prescribed to bring these levels back into a normal range for the patient's age. Another labeled use of estrogen is to treat menopausal symptoms.

In GAT, what is termed "cross sex hormones" is the use of hormones of the opposite sex to attempt to create secondary sex characteristics. In order to do so, very high doses of these hormones are administered. When hormone levels climb above normal levels they are termed supraphysiologic.

The female person does produce some smaller amount of testosterone relative to the male. The normal reference range for adult females depending on the lab is about 10 to 50 ng/dL. However, in female disease conditions these levels can be much higher. For example, in polycystic ovarian syndrome levels may range from 50 to 150 ng/dL. PCOS has been associated with insulin resistance (Dunaif, 1989), metabolic syndrome (Apridonidze, 2005) and diabetes (Joham, 2014).

In certain endocrine tumors such as adrenal carcinoma these levels may be substantially higher in the 300 to 1000 ng/dl range. Adrenal carcinoma is a serious medical condition and may be treated by surgery and potent endocrine medications.

b. Opposite Sex Hormones - Supraphysiologic Doses of Testosterone for Females

Recommendations from the Endocrine Society's clinical guidelines are to ultimately raise female levels of testosterone to 320 to 1000 ng/dL[6] which is on the same order as dangerous endocrine tumors for women as described above (Hembree, 2017). A simple calculation shows this level may be anywhere from 6 to 100 times higher than native female testosterone levels. In doing so they are creating a hormone imbalance known as hyperandrogenism. These extraordinarily high levels of testosterone are associated with multiple risks to the physical and mental health of the patient.

"Studies of transgender males taking testosterone have shown up to a nearly 5-fold increased risk of myocardial infarction relative to females not receiving testosterone" (Laidlaw et al.,2021; Alzahrani et al., 2019). A female can also develop unhealthy, high

[6] In the Endocrine Society's Guidelines there is no grading of evidence for the rationale of using such high supraphysiologic doses of opposite sex hormones for the female or male. There seems to be an underlying assumption that because the person believes to be the opposite sex then they acquire the sex specific laboratory ranges of the opposite sex. "The root cause of this flaw in thinking about diagnostic ranges was exemplified in a response letter by Rosenthal et al claiming that gender identity determines the ideal physiologic range of cross-sex hormone levels (5). Thus a psychological construct, the "gender identity," is imagined to affect physical reality and change a person's sex-specific laboratory reference ranges. This is clearly not the case, otherwise there would be no serious complications of high-dose androgen treatment in transgender males" (Laidlaw et al., 2021).

levels of red blood cells referred to as erythrocytosis. These high red blood cell counts in young women have been shown to be an independent risk factor for cardiovascular disease, coronary heart disease and death due to both (Gagnon, 1994).

Other permanent effects of testosterone therapy involve irreversible changes to the vocal cords. Abnormal amounts of hair growth which may occur on the face, chest, abdomen, back and other areas is known as hirsutism. Should the female eventually regret her decision to take testosterone, this body hair can be very difficult to remove. Male pattern balding of the scalp may also occur. These changes of voice and hair growth can be very psychologically troubling when attempting to reintegrate into society as a female.

Changes to the genitourinary system include polycystic ovaries and atrophy of the lining of the uterus. The breasts have been shown to have an increase in fibrous breast tissue and a decrease in normal glandular tissue (Grynberg et al., 2010). Potential cancer risks from high dose testosterone include ovarian and breast cancer (Hembree, 2017).

According to research regarding testosterone abuse, high doses of testosterone have been shown to predispose individuals towards mood disorders, psychosis, and psychiatric disorders. The "most prominent psychiatric features associated with AAS [anabolic androgenic steroids, i.e. testosterone] abuse are manic-like presentations defined by irritability, aggressiveness, euphoria, grandiose beliefs, hyperactivity, and reckless or dangerous behavior. Other psychiatric presentations include the development of acute psychoses, exacerbation of tics and depression, and the development of acute confusional/delirious states" (Hall, 2005). Moreover, "[s]tudies... of medium steroid use (between 300 and 1000 mg/week of any AAS) and high use (more than 1000 mg/week of any AAS) have demonstrated that 23% of subjects using these doses of steroids met the DSM-III-R criteria for a major mood syndrome (mania, hypomania, and major depression) and that 3.4% — 12% developed psychotic symptoms" (Hall, 2005).

c. Opposite Sex Hormones - Supraphysiologic Estrogen for Males

For the male, estrogen is being used at supraphysiologic doses. The high doses are used in an attempt to primarily affect an increase of male breast tissue development known as gynecomastia. Gynecomastia is the abnormal growth of breast tissue in the male. The occurrence of gynecomastia in the male is sometimes corrected by medication or more commonly by surgery if needed. Other changes of secondary sex characteristics may develop such as softening of the skin and changes in fat deposition and muscle development.

The doses of estrogen given to males for GAT are high and may vary from two to eight or more times higher than normal adult male levels. This produces the endocrine condition called hyperestrogenemia. Long term consequences include increased risk of myocardial infarction and death due to cardiovascular disease (Irwig, 2018). Also "[t]here is strong evidence that estrogen therapy for trans women increases their risk for venous thromboembolism[7] over 5 fold" (Irwig, 2018).

Breast cancer is a relatively uncommon problem of the male. However the risk of a male developing breast cancer has been shown to be 46 times higher with high dose estrogen (Christel et al., 2019).

It is clear that supraphysiologic doses of either testosterone for the female or estrogen for the male can have detrimental health consequences. This is only now being borne out in the literature for adults. However as more children and adolescents are put on these medications one would expect these consequences to become more frequent and to occur earlier in their lives.

7. Surgeries

The fourth stage of gender affirmative therapy is surgical alterations of the body of various kinds in an attempt to somehow mimic features of the opposite sex.

Individual surgical procedures can be a complex topic. It is helpful to first step back and consider conceptually what any surgery can and cannot accomplish.

In its basic form surgery is subtractive. In other words, a portion of tissue, an organ or organs are removed in order to restore health. For example, a diseased gallbladder may be surgically removed to help the patient get back to wellness. An infected appendix may be surgically removed to prevent worsening infection or even death. In both of these cases an unhealthy body part is surgically removed in order to restore health.

In some cases a diseased tissue or organ is removed so that a foreign replacement part may be substituted for an unhealthy organ or tissue. For example, a diseased heart valve may be replaced with a pig valve or a prosthetic heart valve. Another example is a failed liver may be replaced by liver transplant.

[7] Venous thromboembolism is a blood clot that develops in a deep vein and "can cause serious illness, disability, and in some cases, death" (CDC, 2022).

Though modern surgical techniques and procedures are astounding, there are very noteworthy limitations. Importantly, surgery cannot de novo create new organs. If a person's kidneys fail, the surgeon has no scientific method for creating a new set of kidneys that can be implanted or grown within the patient. This conceptual background is helpful when considering various gender affirming surgeries.

There are a variety of gender affirming surgeries. These may include mastectomies, vaginoplasty, metoidioplasty, and phalloplasty.

a. Mastectomy

Mastectomies are the surgical removal of the breasts. The procedure is used in GAT in an attempt to make the chest appear more masculine. The surgery results in a permanent loss of the ability to breastfeed and significant scarring of 7 to 10 inches. The scars are prone to widening and thickening due to the stresses of breathing and arm movement. Other potential complications include the loss of normal nipple sensation and difficulties with wound healing.

It is important to note that this operation cannot be reversed. The female will never regain healthy breasts capable of producing milk to feed a child. Similar to the problems of receiving opposite sex hormones and puberty blockers at a young age, the adolescent is too young to consent to lifelong changes for which she cannot fully appreciate the ramifications. One would not generally expect a 13-year-old or 16-year-old to have thought deeply or to be concerned about breast-feeding in her 20s or 30s or older.

Another important consideration is that compared to the removal of an unhealthy gallbladder or appendix, in the case of gender dysphoria the breasts are perfectly healthy and there is no organic disease process such as a cancer warranting their removal. The future woman who later desists is left with regret about what happened to her at an age before she could provide true informed consent. Breasts cannot be created by a surgeon and restored to a patient in case of regret. She is left with permanent injury and loss of function with respect to her breasts.

Other types of surgery for females include those of the genitalia and reproductive tract. For example the ovaries, uterus, fallopian tubes, cervix and the vagina may be surgically removed. Removal of the ovaries results in sterilization.

Importantly, removing female body parts does not produce a male. Rather, the female has had sex specific organs permanently destroyed with no hope of replacement, while remaining biologically female.

There have also been attempts to create a pseudo-penis. This procedure is known as phalloplasty. It is not possible to de novo create a new human penis. Instead a roll of skin and subcutaneous tissue is removed from one area of the body, say the thigh or the forearm, and transplanted to the pelvis. An attempt is made to extend the urethra or urinary tract for urination through the structure. This transplanted tissue lacks the structures inherent in the male penis which allow for erection, therefore erectile devices such as rods or inflatable devices are placed within the tube of transplanted tissue in order to simulate erection (Hembree, 2017). The labia may also be expanded to create a simulated scrotum containing prosthetic objects to provide the appearance of testicles.

Complications may include urinary stricture, problems with blood supply to the transplanted roll of tissue, large scarring to the forearm or thigh, infections including peritonitis, and possible injury to the sensory nerve of the clitoris.

b. GAT Surgeries on the Male

GAT surgeries for the male include removal of the testicles alone to permanently lower testosterone levels. This is by nature a sterilizing procedure. Further surgeries may be done in an attempt to create a pseudo-vagina which is called vaginoplasty. In this procedure, the penis is surgically opened and the erectile tissue is removed. The skin is then closed and inverted into a newly created cavity in order to simulate a vagina. A dilator must be placed in the new cavity for some time so that it does not naturally close.

Potential surgical complications may include urethral strictures, infection, prolapse, fistulas and injury to the sensory nerves with partial or complete loss of erotic sensation.

c. The Effect of Puberty Blockers on the Vaginoplasty Procedure

It is important to understand that the use of puberty blockers for the male makes the vaginoplasty procedure even more complicated. Puberty blockers prevent the growth and elongation of the penis that naturally occurs during puberty. Therefore the surgeon has a limited length of penile skin to work with. In these cases a technique is employed whereby a segment of the large bowel (colon) is surgically excised while leaving its blood supply intact. The segment of colon is then connected to the short, inverted penile skin in attempt to extend the length of the pseudo-vagina. Obviously the risk and types

of complications increase further and multiple surgeries and revisions may need to be employed.

F. Life Threatening Physical Medical Conditions Versus Suicidal Ideation

Any child or adolescent who has suicidal ideation or has attempted suicide should receive immediate, appropriate psychiatric care. Psychologists and psychiatrists are trained in the recognition and treatment of suicidal ideation and prevention of suicide. A child or adolescent with gender dysphoria who also has suicidal ideation should not be treated any differently. They require compassionate care and a full psychological evaluation of comorbidities such as depression, anxiety, and self-harming behaviors.

However, suicidal ideation or attempts are categorically different than other life-threatening situations, such as a rapidly expanding brain tumor or a severe infection. In these situations, a medication or a surgery is used to stop the progression of an organic physical condition. In contrast, the danger to the self with suicidal ideation relates to a condition of the mind.

Gender affirmative therapy does not treat any life-threatening physical condition. In fact it creates a number of new medical conditions as described above. It is also not an appropriate treatment for suicidal ideation. Neither puberty blocking medications, nor testosterone, nor estrogen have been FDA approved for suicide prevention. In my opinion, it is possible that the hormone imbalances generated by the medications used in GAT may increase the risk of suicidal ideation and completed suicide.

G. Informed Consent

Any person who is to take a medication, undergo a surgical procedure, or have a psychological intervention should understand the risks and benefits before proceeding. A discussion of these risks and benefits should be provided by medical professionals and then the person of sufficient intellectual capacity and maturity can consent to the treatment.

Naturally difficulties arise when a minor is involved in the process of medical decision-making. Their intellect, emotions, and judgement are not fully developed and they are not capable of fully appreciating permanent, life altering changes such as described above. Therefore, they cannot provide informed consent. They may sometimes "assent" to a procedure or medication with a parent or guardian making the final decision.

With respect to GAT, I believe that it is not possible for the parent or guardian to make a true informed consent decision for the child because of the poor quality of evidence of benefit, the known risks of harm, and the many unknown long-term risks of harm which could only truly be known after years and decades of gender affirmative therapy. A parent or guardian cannot consent to dubious treatments which result in irreversible changes to their child's body, infertility, sexual dysfunction, and in many cases eventual sterilization.

Because this age group is still undergoing brain development and they are immature with respect to intellect, emotion, judgment, and self-control, in my professional opinion there is a significant chance a young person may later regret the irreversible bodily changes that result from hormones or from removing an organ or organs that will no longer function and cannot be replaced.

I would also note that adolescents are more prone to high-risk behavior and less likely to fathom the risks and consequences of these decisions (Steinberg, 2008).

H. The WPATH and The Endocrine Society

The declarations of Dr. Linda Hawkins, Dr. Stephen Rosenthal, and Dr. Jane Moe cite the World Professional Association for Transgender Health's ("WPATH") "Standards of Care for the Health of Transsexual, Transgender, and Gender Non-Conforming People." According to their declarations, Dr. Hawkins is a longstanding member of WPATH, and Dr. Rosenthal is on the Board of Directors of WPATH.

WPATH's "Standards of Care" were prepared within their advocacy organization and are purported to be a "professional consensus about the psychiatric, psychological, medical, and surgical management of gender dysphoria" (WPATH, 2022). However, the "professional consensus" exists only within the confines of its organization. Furthermore, their "Standards of Care," unlike the Endocrine Society's guidelines, do not have a grading system for either the strength of their recommendations or the quality of the evidence presented.

While the Endocrine Society has issued "Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline," these are only "guidelines." The Endocrine Society's guidelines specifically state that their "guidelines cannot guarantee any specific outcome, nor do they establish a standard of care" (Hembree at al, 2017, p. 3895). This contradicts Dr. Rosenthal's claim about the guidelines calling it "a guide detailing the standard of medical care for gender dysphoria".

In the Endocrine Society's guidelines, the quality of evidence for the treatment of adolescents is rated "very low-quality evidence" and "low quality evidence". "The quality of evidence for [puberty blocking agents] is noted to be low. In fact, all of the evidence in the guidelines with regard to treating children/adolescents by [gender affirmative therapy] is low to very low because of the absence of proper studies" (Laidlaw et al., 2019).

Unlike some other recommendations for adolescent GAT, the Endocrine Society's guidelines do not include any grading of the quality of evidence specifically for their justification of laboratory ranges of testosterone or estrogen or for adolescent mastectomy or other surgeries.

I. The Lack of Evidence of Effectiveness of GAT

There is also evidence that questions the long-term effectiveness of opposite sex hormones and gender reassignment surgery. A Swedish study in 2011 examined data over a 30-year period (Dehejne, 2011). The Dhejne team made extensive use of numerous Swedish registries and examined data from 324 patients in Sweden over 30 years who had taken opposite sex hormones and had undergone sex reassignment surgery. They used population controls matched by birth year, birth sex, and reassigned sex. When followed out beyond ten years, the sex-reassigned group had nineteen times the rate of completed suicides and nearly three times the rate of all-cause mortality and inpatient psychiatric care compared to the general population of Sweden.

Other published studies of GAT have been shown to have serious errors. For example a major correction was issued by the American Journal of Psychiatry. The editors of an October 2019 study, titled "Reduction in mental health treatment utilization among transgender individuals after gender-affirming surgeries: a total population study" (Bränström study) retracted their original primary conclusion. Letters to the editor by twelve authors including myself led to a reanalysis of the data and a corrected conclusion stating that in fact the data showed no improvement in mental health for transgender identified individuals after surgical treatment ("Correction", 2020; Van Mol et al., 2020). [8]

The Centers for Medicare and Medicaid Services ("CMS") has found "inconclusive" clinical evidence regarding gender reassignment surgery. Specifically, the CMS Decision Memo for Gender Dysphoria and Gender Reassignment Surgery (CAG-

[8] The study also did not show an improvement in mental health with opposite sex hormones.

00446N) (June 19, 2019) states: “The Centers for Medicare & Medicaid Services (CMS) is not issuing a National Coverage Determination (NCD) at this time on gender reassignment surgery for Medicare beneficiaries with gender dysphoria because the clinical evidence is inconclusive for the Medicare population.”

Also noteworthy is that other nations are questioning gender affirmative therapy. For example in the Bell vs Tavistock Judgment in the UK, regarding puberty blockers in GAT, they concluded that "there is real uncertainty over the short and long-term consequences of the treatment with very limited evidence as to its efficacy, or indeed quite what it is seeking to achieve. This means it is, in our view, properly described as experimental treatment" (Bell v Tavistock Judgment, 2020).

Finland in 2020 recognized that “[r]esearch data on the treatment of dysphoria due to gender identity conflicts in minors is limited,” and recommended prioritizing psychotherapy for gender dysphoria and mental health comorbidities over medical gender affirmation (Council for Choices in Healthcare in Finland, 2020).

In 2021, Sweden’s largest adolescent gender clinic announced that it would no longer prescribe puberty blockers or cross-sex hormones to youth under 18 years outside clinical trials (SEGM, 2021).

Dr Hilary Cass "was appointed by NHS England and NHS Improvement to chair the Independent Review of Gender Identity Services for children and young people in late 2020” (The Cass Review website, 2022).

In her interim report dated February 2022, it states that “[e]vidence on the appropriate management of children and young people with gender incongruence and dysphoria is inconclusive both nationally and internationally” (Cass, 2022).

Conclusion

The gender affirmative therapy model suffers from serious deficiencies in logic and lacks scientific foundation. The deep error hidden in this model is that one cannot in fact change sex. One cannot acquire the deep characteristics of biological sex in order to gain the complete sexual and reproductive functions of the opposite sex. This is not technologically possible.

Children and adolescents are of such immature minds that they are likely to believe that it is possible. In fact they may come to believe that their inherent, biologically necessary puberty is "terrifying". This fear begins as the result of social transition. Puberty blockers

sustain this state of mind by retaining a childlike state with respect to the genitalia and body habitus. High dose opposite sex hormones then cause medical conditions such as gynecomastia and hirsuitism. These conditions serve to convince the young person that they are going through puberty of the opposite sex when in fact they are not developing sexually and are infertile.

There are known risks, some of which I have described above, including cardiovascular disease, cancer, deficiencies in ultimate bone density, harms to sexual function, infertility, and for some permanent sterility. The child or adolescent cannot consent to these harms when they are not mature enough to fully comprehend what they mean.

For the reasons set forth above, in my professional opinion as an endocrinologist, no child or adolescent should receive puberty blockers to block normal puberty, nor should they receive supraphysiologic doses of opposite sex hormones to attempt to alter secondary sex characteristics, nor should they have surgeries to remove or alter the breasts, genitalia or reproductive tracts as part of GAT. The child cannot consent or assent to these procedures. The parent or guardian also cannot consent to the life altering changes resulting from GAT. Therefore I believe that the Alabama Vulnerable Child Compassion and Protection Act is based on sound medical principles for the protection of minors.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct. Executed on May 1, 2022.

Michael K Laidlaw M.D.

Michael K. Laidlaw

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Michael K. Laidlaw, M.D.
5180 Grove St.
Rocklin, CA 95677
Office: [redacted]
Fax: [redacted]

EMPLOYMENT

2006-Present	Michael K Laidlaw, MD Inc. Private Practice – Endocrinology, Diabetes, and Metabolism. Rocklin, CA

EDUCATION

2004-2006	Endocrinology and Metabolism Fellowship - Los Angeles County/University of Southern California Keck School of Medicine
2001-2004	Internal Medicine Residency - Los Angeles County/University of Southern California Keck School of Medicine
1997-2001	University of Southern California Keck School of Medicine Doctor of Medicine Degree May 2001
1990-1997	San Jose State University Bachelor of Science Degree in Biology with a concentration in Molecular Biology, Cum Laude

LICENSURE

California Medical License – Physician and Surgeon: # A81060: Nov 6, 2002. Exp 5/31/2024.

PROFESSIONAL AFFILIATIONS

Endocrine Society 2006-2022
National Board of Physicians and Surgeons - Endocrinology, Diabetes, & Metabolism 2018-2024
National Board of Physicians and Surgeons - Internal Medicine 2018-2024
American Board of Internal Medicine - Endocrinology, Diabetes, and Metabolism – 2006-2016
American Board of Internal Medicine - Internal Medicine - 2005-2015

HONORS AND RECOGNITION

2010	Endocrine Society Harold Vigersky Practicing Physician Travel Award
2004-2005	Vice President - Joint Council of Interns and Residents
2002-2004	Council Member – Joint Council of Interns and Residents
1996, 1997	Dean's Scholar, San Jose State University
1995	Golden Key National Honor Society

RESEARCH, PUBLICATIONS, AND EXPERT REPORTS

2021	Publication – Michael K Laidlaw, Andre Van Mol, Quentin Van Meter, Jeffrey E Hansen. Letter to the Editor from M Laidlaw et al.: "Erythrocytosis in a Large Cohort of Trans Men Using Testosterone: A Long-Term Follow-Up Study on Prevalence, Determinants, and Exposure Years." The Journal of Clinical Endocrinology & Metabolism, Volume 106, Issue 12, December 2021, Pages e5275–e5276, https://doi.org/10.1210/clinem/dgab514
2021	Brief of Amicus Curiae – Bursch, John J., McCaleb, Gary S., Van Meter, Quentin L., Laidlaw, Michael K., Van Mol, Andre, Hansen, Jeffrey E. Brief of Amicus Curiae. United States Court of Appeals for the Eight Circuit. DYLAN BRANDT, et al., Plaintiffs-Appellees v. LESLIE RUTLEDGE, in her official capacity as the Arkansas Attorney General, et. al. Defendants-Appellants. 23 Nov 2021.
2020	Expert Witness Affidavit 1 & 2 – Laidlaw MK. Supreme Court of British Columbia. File No. S2011599, Vancouver Registry. Between A.M. Plaintiff and Dr. F and Daniel McKee Defendants. 11/23/20 & 11/25/20.
2020	Brief of Amicus Curiae – Wenger, Randal L., McCaleb, Gary S., Grossman, Miriam, Laidlaw, Michael K., McCaleb, Gary S., Van Meter, Quentin L., Van Mol, Andre. Brief of Amicus Curiae. United States Court of Appeals for the Ninth Circuit. LINDSAY HECOX and JANE DOE, with her next friends Jean Doe and John Doe, Plaintiffs-Appellees v. BRADLEY LITTLE, in his official capacity as Governor of the State of Idaho, et. al. Defendant-Appellant. 19 Nov 2020
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2019	Speech to the U.K. House of Lords – Laidlaw MK. "Medical Harms Associated with the Hormonal and Surgical Therapy of Child and Adolescent Gender Dysphoria". Parliament, London, U.K. 15 May 2019.
2019	Publication – Laidlaw MK, Cretella M, Donovan K. "The Right to Best Care for Children Does Not Include the Right to Medical Transition". The American Journal of Bioethics. Volume 19. Published online 20 Feb 2019. 75-77. https://doi.org/10.1080/15265161.2018.1557288
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2013 Abstract – Poster presentation Jun 2013. Endocrine Society Annual Meeting. A 12 Step Program for the Treatment of Type 2 Diabetes and Obesity.

2011 Abstract – Poster presentation Nov 2011. Journal of Diabetes Science and Technology. A Video Game Teaching Tool for the Prevention of Type 2 Diabetes and Obesity in Children and Young Adults.

2011 Abstract – Journal of Diabetes Science and Technology. A Web-Based Clinical Software Tool to Assist in Meeting Diabetes Guidelines and Documenting Patient Encounters.

2008 Abstract - Accepted to Endocrine Society Annual Meeting 2008. Hypercalcemia with an elevated 1,25 dihydroxy-Vitamin D level and low PTH due to granulomatous disease.

2005-2006 Clinical Research - University of Southern California – Utility of Thyroid Ultrasound in the Detection of Thyroid Cancer. Study involving the use of color flow/power doppler ultrasound and ultrasound guided biopsy to detect the recurrence of thyroid cancer in patients with total thyroidectomies.

2005 Certification - Certification in Diagnostic Thyroid Ultrasound and Biopsy – AACE 2005

2003 Certification - Understanding the Fundamentals: Responsibilities and Requirements for the Protection of Human Subjects in Research. University of Southern California. 29 Sep 2003 - 29 Sep 2006

2002-2005 Clinical Research - University of Southern California - Determining the Role of Magnesium in Osteoporosis. Study involved collecting and analyzing patient data related to patient characteristics, laboratory results, bone mineral density exams, nutrition analysis, and genetic analysis in order to determine a link between magnesium deficiency and osteoporosis.

1996 Research Assistant - San Jose State University - Role of the suprachiasmatic nucleus pacemaker in antelope ground squirrels.

1995-1996 Research Assistant - San Jose State University/NASA. Acoustic tolerance test and paste diet study for space shuttle rats.

PERSONAL

Languages: Conversational Spanish, French
Tutor: Biochemistry, computer science, High School mentor
Computers: Ruby, Rails, Javascript, C++, C, Java, and HTML programming

DOC. 69-4

DEFENDANT'S EXHIBIT 4

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER, *et al.*,	)	
Plaintiffs,	)	
v.	)	No. 2:22-cv-00184-LCB-SRW
KAY IVEY, in her official capacity as Governor of the State of Alabama, *et al.*,	)	
Defendants.	)	

DECLARATION OF QUENTIN L. VAN METER, M.D.

My name is Quentin L. Van Meter. I am over the age of 19, I am qualified to give this declaration, and I have personal knowledge of the matters set forth herein.

My CV is attached to this declaration. My recent publications in the *Journal of Clinical Endocrinology and Metabolism* are listed on my CV.

In the past four years, I have provided expert testimony in state legislative committee hearings in Alabama, Pennsylvania, Missouri, Iowa, and California, and I have been deposed as an expert witness in Virginia, Ohio, Missouri, and Georgia:

- 2018: Court of the Queens Bench Ontario, court file 1808-00144, deposed
- 2018: Sieffert v Hamilton Co Ohio, court testimony
- 2019: Gavin Grimm v Gloucester Co Virginia School Board, deposed
- 2019: Multiple Plaintiffs v State of Ohio Bureau of Records, deposed
- 2020: Loughman v Loughman, Harris County, Texas, deposed
- 2021: Spahr v Spahr, St Louis County, MO, court testimony
- 2021: Laura Cauthen v James Cauthen, Cobb County GA, court testimony

I am compensated at the rate of $350.00 per hour for record review and document preparation and $450.00 per hour for deposition or court testimony on this matter. My compensation is not dependent upon the substance of my opinions or the outcome of the case.

Qualifications

I have been retained by counsel for Defendants as an expert in connection with the above-captioned litigation. I have actual knowledge of the matters stated in this declaration. My professional background, experience, and publications are detailed in my curriculum vitae. A true and accurate copy is attached as Exhibit A to this declaration. I received my B.A. in Science at the College of William and Mary and my M.D. from the Medical College of Virginia, Virginia Commonwealth University. I am currently a pediatric endocrinologist in private practice in Atlanta, Georgia. I am the President of Van Meter Pediatric Endocrinology, P.C. I am on the clinical faculties of Emory University School of Medicine and Morehouse College of Medicine, in the role of adjunct Associate Professor of Pediatrics. I am board certified in Pediatrics and Pediatric Endocrinology. I have been licensed to practice medicine in Georgia since 1991. I have been previously licensed to practice medicine in California, Louisiana, and Maryland.

I did my Pediatric Endocrine fellowship at Johns Hopkins Hospital from 1978-1980. The faculty present at that time had carried on the tradition of excellence established by Lawson Wilkins, M.D. Because of the reputation of the endocrine program as a center for exceptional care for children with disorders of sexual differentiation, I had well-above average exposure to such patients. As a Pediatric Fellow, I was also exposed to adults with Gender Identity Disorder, then called Trans-Sexuality, and received training from John Money, Ph.D., in his Psychohormonal Division.

Differentiation in the Fetus

From the moment of conception, a fetus is determined to be either a male (XY), female (XX), or in rare cases, to have a combination of sex-determining chromosomes, many of which are not compatible with life, and some of which are the cause of identifiable clinical syndromes.

The presence of a Y chromosome in the developing fetus directs the developing gonadal tissue to develop as a testicle. The absence of a functional Y chromosome allows the gonadal tissue to develop as an ovary. Under the influence of the mother's placental hormones, the testicle will produce testosterone which directs the genital tissue to form a penis and a scrotum. Simultaneously, the testicle produces anti-Müllerian Hormone (AMH) which regresses development of the tissue that would otherwise develop into the uterus, fallopian tubes, and upper third of the vagina. This combination of actions in early fetal development is responsible for what we subsequently see on fetal sonograms, and what we observe at birth as male or female genitalia. It is only when the genital structures are ambiguous in appearance that sex assignment is withheld until a thorough expert team evaluation has occurred.

For reasons most often occurring as random events, there are malfunctions of the normal differentiation. These aberrations of normal development are responsible for what we classify as Disorders of Sexual Differentiation (DSD), and they represent a very small fraction of the human population. The incidence of such circumstances occurs in 1:4500 to 1:5500 births.[1] Sex is binary, male or female, and is determined by chromosomal complement and corresponding reproductive role. The exceedingly rare DSDs are all medically identifiable deviations from this sexual binary norm. The 2006 consensus statement of the Intersex Society of North America and the 2015 revision of the Statement do not endorse DSD as a third sex.[2] DSD outcomes range from appearance of female external genitalia in an XY male (complete androgen insensitivity syndrome) to appearance of male external genitalia in an XX female (severe congenital adrenal hyperplasia).

As one would expect, there are variations of the degree of hormonally driven changes that create ambiguous genital development that prevent assigning of a specific classification as

either male or female at birth. DSD patients are not "transgender"; they have an objective, physical, medically verifiable, physiologic condition. Transgender people generally do not have intersex conditions or any other verifiable physical anomaly. People who identify as "feeling like the opposite sex" or "somewhere in between" do not comprise a third sex. They remain biological men or biological women.

In some DSDs there exist more than one set of chromosomes. When there is a divergence of the appearance of the external genitalia from the chromosomally determined sex due to the presence of both an ovarian and testicular cell lines in a patient simultaneously, the patient is classified as having ovo-testicular DSD (formerly termed a true hermaphrodite). When there is a disruption in the development of genital structures but there is solely testicular tissue present in the chromosomal male or solely ovarian tissue in the chromosomal female, the term 46 XY DSD or 46 XX DSD is used instead respectively (formerly termed male pseudohermaphrodite or female pseudohermaphrodite).

The decision to assign a sex of rearing is complex and is specific to the diagnosis. Patients with complete androgen insensitivity (CAIS) are XY DSD but are never reared as a male. Because testosterone never influences development, they become happy, functional female adults with infertility. Females with severe congenital adrenal hyperplasia (CAH) are XX DSD but are not reared as males despite the male appearance of the genitalia at birth. Although these girls may show a tendency for male play behaviors as children, they generally assume a female sexual identity. Therapeutic interventions in the DSD individuals from infancy onward are aimed at what function can be expected from their disordered sexual anatomy in terms of function and fertility. Most often, the chromosomal sex aligns with the sex of rearing.

Gender Identity

"Gender" is a term that refers to the psychological and cultural characteristics associated with biological sex. It is a psychological concept and sociological term, not a biological one. The term gender possessed solely a linguistic meaning prior to the 1950s. This changed when sexologists of the 1950s and 1960s co-opted the term to conceptualize cross-dressing and transsexualism in their psychological practice. "Gender identity" is a term coined by my former endocrine faculty member John Money in the 1970s and has come to refer to an individual's mental and emotional sense of being male or female. The norm is for individuals to have a gender identity that aligns with one's biological sex.

Gender discordance (formerly Gender Identity Disorder) is used to describe a psychological condition in which a person experiences marked incongruence between his experienced gender and the gender associated with his biological sex. He will often express the belief that he is the opposite sex. Gender discordance occurs in 0.001% of biological females and in 0.0033% of biological males.[3] Exact numbers are hard to document since reporting is often anecdotal. Gender discordance is not considered a normal developmental variation.

"Gender Dysphoria" is a diagnostic term to describe the emotional distress caused by gender incongruity.[4] John Money played a prominent role in the early development of gender theory and transgenderism. He understood gender to be "the social performance indicative of an internal sexed identity."[5] He joined the Johns Hopkins faculty in 1951 specifically to have access to children diagnosed with DSD, hoping to prove his theory that gender was arbitrary and fluid. Money experimented with DSD infants by assigning them to the opposite biological sex through surgical revision, counseling, and hormonal manipulation during puberty. His mode of operation was to have a theory and then experiment with patients to see how his theory worked. This kind

of endeavor does not anticipate or prevent adverse outcomes and is the antithesis of ethical science. Money never submitted his research proposals for review; today, Institutional Review Boards (IRBs) serve to rigorously review proposed clinical research protocols to prevent all potential and real harm to patients.

Because of his experience with infants, Money initially garnered support from endocrine colleagues and surgical colleagues, and Johns Hopkins became a renowned center for care of patients with DSD in the 1970s, garnering referrals from around the world. Follow-up studies on these infants later showed, however, that altering their natal sexual identity via social intervention could lead to severe psychological harm. Clinical case reports of children with DSD have revealed that gender identity is indeed not immune to environmental input.[6]

Meanwhile, Money had expanded into the field of adult patients with persistent gender identity disorder. This very small group of patients chose voluntarily, as adults, to enter a very precise protocol which began with living socially as the opposite sex for a year, eventually receiving hormonal therapy to change their physical appearance to some extent. The final step was surgical revision of the body structures that would otherwise be at odds with their desired gender. This small group of patients was followed for a number of years past their final surgical procedures and required continuous counseling. These patients expressed some degree of subjective satisfaction but showed no objective improvement in overall wellbeing.[7] The legacy of John Money fell into disrepute and the transsexual treatment program at Johns Hopkin was closed in the 1980s based on the lack of evidence that this protocol produced an effective cure.

Etiology of Gender Disorders

Transgender affirming professionals claim transgender individuals have a "feminized brain" trapped in a male body at birth and vice versa based upon various brain studies. Diffusion-

weighted MRI scans have demonstrated that the pubertal testosterone surge in boys increases white matter volume. A study by Rametti and colleagues found that the white matter microstructure of the brains of female-to-male (FtM) transsexual adults, who had not begun testosterone treatment, more closely resembled that of men than that of women.[8] Other diffusion-weighted MRI studies have concluded that the white matter microstructure in both FtM and male-to-female (MtF) transsexuals falls halfway between that of genetic females and males.[9] These studies, however, are of limited clinical significance due to the small number of subjects and failure to account for neuroplasticity.

Neuroplasticity is the well-established phenomenon in which long-term behavior alters brain microstructure. For example, the MRI scans of experienced cab drivers in London are distinctly different from those of non-cab drivers, and the changes noted are dependent on the years of experience.[10] There is no evidence that people are born with brain microstructures that are forever unalterable, but there is significant evidence that experience changes brain microstructure.[11,12] Therefore, any transgender brain differences would more likely be the result of transgender behavior than its cause.

Furthermore, infants' brains are imprinted prenatally by their own endogenous sex hormones, which are secreted from their gonads beginning at approximately eight weeks' gestation.[13,14,15] There are no published studies documenting MRI-verified differences in the brains of gender-disordered children or adolescents. The DSD guidelines also specifically state that current MRI technology cannot be used to identify those patients who should be raised as males or raised as females.[16] Behavior geneticists have known for decades that while genes and hormones influence behavior, they do not hard-wire a person to think, feel, or behave in a particular way. The science of epigenetics has established that genes are not analogous to rigid

"blueprints" for behavior. Rather, humans "develop traits through the dynamic process of gene-environment interaction. ... [genes alone] don't determine who we are." [17]

Regarding transgenderism, twin studies of adults prove definitively that prenatal genetic and hormone influence is minimal. The largest twin study of transgender adults found that only 20 percent of identical twins were both transgender-identified.[18] Since identical twins contain 100 percent of the same DNA from conception and develop in exactly the same prenatal environment exposed to the same prenatal hormones, if genes and/or prenatal hormones contributed to a significant degree to transgenderism, the concordance rates would be close to 100 percent. Instead, 80 percent of identical twin pairs were discordant. This difference would indicate that at least 80 percent of what contributes to transgenderism as an adult in one co-twin consists of one or more non-shared post-natal experiences including but not limited to non-shared family experiences. These findings also mean that persistent GD is due predominately to the impact of nonshared environmental influences. These studies provide compelling evidence that discordant gender is not hard-wired genetically.

Gender Dysphoria vs. Gender Identity Disorder

Up until the recent revision of the DMS-IV criteria, the American Psychological Association (APA) held that Gender Identity Disorder (GID) was the mental disorder described as a discordance between the natal sex and the gender identity of the patient. Dr. Kenneth Zucker, who is a highly respected clinician and researcher from Toronto, carried on evaluation and treatment of GID patients for forty years. His works, widely published, found that the vast majority of boys and girls with GID identify with their biological sex by the time they emerge from puberty to adulthood, through either watchful waiting or family and individual counseling.[19] His results were mirrored in studies from Europe.[20,21]

When the DMS-V revision of the diagnosis of GID was proposed by the APA committee responsible for revision, Dr. Zucker strongly opposed the change to the term Gender Dysphoria, which purposefully removed gender discordance as a mental disorder apart from the presence of significant emotional distress. With this revision, Gender Dysphoria describes the mental anguish which is experienced by the gender discordant patient. The theory that societal rejection is the root cause of Gender Dysphoria was validly questioned by a study from Sweden which showed that the dysphoria was not eliminated by hormones and sex reassignment surgery even with widespread societal acceptance.[22]

Treatment of Gender Dysphoria

The treatment of children and adolescents with gender discordance and accompanying gender dysphoria should include an in-depth evaluation of the child and family dynamics. This evaluation provides a basis on which to proceed with psychologic therapy. The entire biologic and social family should be involved in psychological therapy designed to assist the patient, if at all possible, to align gender identity with natal sex. Psychological support by competent counselors with an intent of resolving the gender conflict should be provided as long as the patient continues to suffer emotionally. Given the high degree of eventual desistance of gender discordance/dysphoria by the end of puberty, it would be ethical and logical to counsel the patient and family to rear the child in conformity with natal sex.

There should be no interruption of natural puberty. Natural pubertal maturation in accordance with one's natal sex is not a disease. It is designed to carry malleable, immature children forward to be healthy adults capable of conceiving their own progeny. Puberty affects physical changes, some of them painful, unique to the natal sex to reflect the laws of nature. Interruption of puberty has been reserved for children who begin puberty at an age much

younger than normal in an effort to preserve final height potential and avoid the social consequences of precocious maturation.

There are a number of physical changes that are a consequence of normally timed puberty that could be classified as disadvantageous: changes in body proportions can alter success with dance and gymnastics; acne can be severe and disfiguring; a boy soprano can suddenly hardly carry a tune. It has not been the ethical standard of care to stop puberty so that these changes can be circumvented. Erikson described the stage of adolescence as "Identity versus Role Confusion" during which the teen works at developing a sense of self by testing roles then integrating them into a single identity.[23] This process is often unpleasant regardless of the presence or absence of gender identity conflicts. The major benefit of enduring puberty in a GD patient is that it provides a strong likelihood of alignment of his gender identity with his natal sex. There is no doubt that these patients need compassionate care to get them through their innate pubertal changes.

The light at the end of the tunnel is the proven scientific evidence that 80%- 95% of pre-pubertal children with GD will come to identify with their biological sex by late adolescence. Some will require lifelong supportive counseling while others will not.[24] Intervention at a young age with gonadotropin releasing hormone analogs (often referred to as puberty blockers) to either stop puberty early on or prevent it from starting before it naturally occurs is suggested by guidelines developed by WPATH without scientific basis. There is evidence that bone mineral density is irreversibly decreased if puberty blockers are used during the years of adolescence.[25] To treat puberty as a pathologic state of health that should be avoided by using puberty blockers (GnRH analogs) is to interrupt a major necessary physiologic transformation at a critical age when such changes can effectively happen. We have definite evidence of the need for estrogen in

females to store calcium in their skeleton in their teen years. That physiologic event can't be put off successfully to a later date. It is very difficult to imagine ethical controlled clinical trials that could elucidate the effects of delaying puberty until the age of consent.

The use of cross-sex hormones during this same time frame has no basis of safety and efficacy. The use of such treatment in adults raises scientifically valid concerns that were amply expressed in the 2009 Endocrine Society Guidelines on Transgender treatment. The next step in WPATH-recommended intervention is to use cross-sex hormone therapy during the time when the patient would naturally be experiencing endogenous pubertal changes. This too is not based on scientifically proven theories. The use of cross-sex hormones can cause permanent infertility.[26]

The final recommended step is so-called "sex reassignment surgery," which can include surgical removal of the breasts in natal females, or removal of the penis and scrotum in natal males. Each of these steps has adverse outcomes, some reversible and others not. Mastectomies leave scars, and there is great difficulty in creating a functional vaginal-like orifice, and certainly no success in creating an innervated erectile penis where none existed previously. Sex reassignment surgery is, by nature, permanent.

Recurrent Themes in the Plaintiff Declarations

Puberty blockers are stated to be completely reversible in their effects on the adolescent who has entered puberty based on clinical studies in young children with precocious puberty who have been treated with these drugs. This is comparing apples to oranges. Precocious puberty, by definition, is defined as puberty which starts before the 8th birthday for a female child or the before the 9th birthday in a male child. The end of treatment is carefully timed so that resumption of puberty occurs at the average age for females (10.5 years) and males (11.5 years). This allows

the necessary functions of puberty to prepare the body for reproduction and affects the bones, gonads, and brain, among other body systems. On the other hand, blocking puberty at the age of normal puberty prevents the needed accretion of calcium into the skeleton and prevents the maturation of the gonads. There is no long-term data that compares bone, gonad, and brain health in pubertal-aged patients who have had puberty interrupted and those who have not, as was noted as a concern in the Endocrine Society Guidelines. There are no such ongoing studies completed that guarantee the full reversibility of blocking puberty in this age group, but there is evidence that normal bone density can't be fully reestablished. Without any verifiable safety data, using the puberty blockers for interrupting normal puberty is not a sanctionable off-label use of these drugs and is therefore to be considered uncontrolled, non-consentable experimentation on children.

It has been stated that the plaintiffs are only asking that established standards of care be followed. There are no standards of care for transgender health. Standards of care established by broad consensus are reached by inclusion of the whole spectrum of opinions, clinical experience and published science in the formation thereof. The guidelines published by WPATH,[27] the Endocrine Society,[26,28] the American Academy of Pediatrics,[29] and the Pediatric Endocrine Society[30] are solely the opinions of like-minded practitioners who excluded any contrary opinion. The Endocrine Society Guidelines, as mentioned before, clearly stated that they are not to be considered standards of care. Before true consensus-driven standards of care are established for the treatment of transgender patients of all ages, following the current guidelines is risky experimentation.

The plaintiff declarations repeatedly refer to the established increased risk of suicide if any of the affirmation strategies are not followed to completion. There are only two total

population studies in the peer-reviewed medical literature.[22,31,32] They show that when every recorded case in the population of Sweden was analyzed, neither medical affirmation or medical affirmation followed by surgical affirmation improved the mental health of the patients in the long run.

Finally, I am curious about the clear lack of documentation of references in the plaintiffs' declarations. They are merely stating their personal opinions without supporting evidence and relying on anecdotal case reports.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct. Executed on 1 May, 2022.

Quentin L. Van Meter, M.D.

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QUENTIN L. VAN METER, M.D. **updated 29 April, 2022**
1800 Howell Mill Road NW, Suite 475
Atlanta, Georgia 30318 [redacted]

PERSONAL

Home Address:	[redacted], Atlanta, GA 30309
Home Phone:	[redacted]
Date of Birth:	September 13, 1947
Place of Birth:	Laramie, Wyoming
Citizenship:	USA

EDUCATION:

Undergraduate:	College of William & Mary, 1969 B.S. – 1969
Medical School:	Medical College of Virginia, 1973 M.D. – 1973

CLINICAL TRAINING:

Institution:	The University of California, San Francisco
Hospital:	Naval Regional Medical Center, Oakland
Position:	Pediatric Intern – 1973 – 1974 Pediatric Resident – 1974 – 1976
Institution:	Johns Hopkins University
Hospital:	Johns Hopkins Hospital
Position:	Fellow, Pediatric Endocrinology 1978 – 1980 Fellowship Program Director: Claude Migeon, M.D.
Current Position:	Pediatric Endocrinologist Van Meter Pediatric Endocrinology, P.C. 1800 Howell Mill Road, Suite 475 Atlanta, Georgia 30318

PROFESSIONAL CERTIFICATION & SOCIETIES:

Diplomate, National Board of Medical Examiners, 1974

American Board of Pediatrics, certified in general pediatrics, 1978, sub-board certified in Pediatric Endocrinology, 1983

Fellow:	American Academy of Pediatrics, Georgia Chapter 1975 -present President, Uniformed Services West Chapter, 1987 – 1990 District VIII member, AAP Committee on Awards for Excellence in Research, 1990-1994 Editor, The Georgia Pediatrician, 1994 – 1998
	Chairman, Georgia Chapter Legislative Committee, 1996 – 2006
Fellow:	The American College of Pediatricians, 2007 – present Member of the Board of Directors, 2008- present President, 2018-present
Member:	Pediatric Endocrine Society, 1989 – present
Member:	American Diabetes Association Professional Section, 1988 – present
Member:	Endocrine Society, 1994-present
Member:	Southern Pediatric Endocrine Society, 1992 – Present
Member:	American Association of Clinical Endocrinologists, 2005 – present
Licensure:	Georgia, #34734

FACULTY POSITIONS:

Institution:	Morehouse School of Medicine
Position:	Associate Clinical Professor, Pediatrics, 2004 – present
Institution:	Emory University School of Medicine
Position:	Adjunct Associate Professor, Pediatrics, 1991 – present
Institution:	University of California, San Francisco
Position:	Associate Clinical Professor, Pediatrics, 1989 – 1991
Institution:	University of California, San Diego, School of Medicine
Position:	Assistant Clinical Professor, Pediatrics, 1980 – 1986
Institution:	LSU School of Medicine, Clinical Instructor, Pediatrics, 1977 – 1978

MILITARY SERVICE:

Commission:	Medical Corps, United States Navy, August 1971
Rank:	Captain, retired
Duty Stations:	Health Professional Scholarship Student, 1971 – 1974
	Intern and Resident, Pediatrics, Naval Regional Medical Center, Oakland, 1973 – 1976
	Staff Pediatrician, Naval Regional Medical Center, Oakland, 1976

Staff Pediatrician, Naval Regional Medical Center,
New Orleans, 1976 – 1978

Full time out-service fellow in Pediatric Endocrinology,
Johns Hopkins Hospital, 1978 – 1980

Staff Pediatric Endocrinologist, Naval Hospital San Diego,
1980 – 1986

Chairman and Director, Residency Training, Department of Pediatrics
Naval Hospital Oakland, 1986 – 1991

OTHER PROFESSIONAL ACTIVITIES:

Consultant, Pediatric Endocrinology,
Nellis Air Force Base Hospital, Las Vegas, Nevada
1981 – 1991

Consultant, Pediatric Endocrinology,
Naval Hospital Lemoore, CA
1986 – 1991

Consultant, Pediatric Endocrinology,
Letterman Army Medical Center, Presidio of San Francisco, CA
1990 – 1991

Consulting Endocrinologist,
Columbus Regional Medical Center, Columbus, GA
1991 – 1994

Pediatrician and Pediatric Endocrinologist, partner
Fayette Medical Clinic
Peachtree City, Georgia 30269
September 1991 – October 2003

Pediatric Endocrinologist Peer Reviewer 2006 – present
MCMC, LLC, Boston, MA
IMEDECS, Lansdale PA

Speaker's Bureau
Novo Nordisk
AAP Eqipp course on Growth- development committee- 2012

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Wayne V. Moore[1], Patricia Y. Fechner[2], Huong Jil Nguyen[3], Quentin L. Van Meter[4], John S. Fuqua[5] , Bradley S. Miller[6], David Ng[7], Eric Humphriss[8], R. W. Charlton[8], George M. Bright[8], Safety and Efficacy of Somavaratan (VRS-317), a Long-Acting rhGH, in Children with Growth Hormone Deficiency (GHD): 3-Year Update of the VERTICAL & VISTA Trials, presented at the 2017 Endocrine Society meeting in Orlando FL

Bradley S. Miller[1], Wayne V. Moore[2], Patricia Y. Fechner[3], Huong Jil Nguyen[4], Quentin L. Van Meter[5], John S. Fuqua[6], David Ng[7], Eric Humphriss[8], R. W. Charlton[8], George M. Bright[8], 3-Year Update of the Phase 2a and Long-term Safety Studies (VERTICAL and VISTA) of Somavaratan (VRS-317), a Long-acting rhGH for the Treatment of Pediatric Growth Hormone Deficiency, presented at the 2017 IMPE meeting in Washington D.C.

ADDITIONAL PRESENTATIONS/LECTURES:

Pediatrics Update, CME Associates, San Diego – Orlando Annual Conferences: Lectures on Pediatric Endocrine Subjects – 1986 – 2001. Course Moderator, 1997, 1998, 1999, 2000, 2001

Endocrine and Gastroenterology Update, CME Associates, Maui HI Nov 2001, Lecturer and Course Moderator

Lecture on Panhypopitutarism, Pharmacia Conference, Nashville TN April 2002.

Family Medicine Review Course, Orlando, FL, 1992 – 2001

Pediatric Grand Rounds, Tanner Medical Center, October 1997

Pediatric Grand Rounds, Hughes Spaulding Children's Hospital, September, 2003

Pediatrics in the Park, Fall CME meeting for the Georgia Chapter of the American Academy of Pediatrics, November 2003

Pediatric Grand Rounds, Columbus Regional Medical Center, January 2004

Frontiers in Pediatrics CME Course, sponsored by the Atlanta Children's Health Network, Atlanta, March 2004.

Pediatric Grand Rounds, Eggleston Children's Hospital, May 2004.

Sue Schley Matthews Pediatric Conference, Columbus Regional Medical Center, September 2004

56th Annual Scientific Assembly and Exhibition of the Georgia Academy of Family Physicians, Nov 2004

Program Co-Chairman: Southern Pediatric Endocrine Society Annual meeting, Nov 2004, November 2014

Presentations on Diabetes, Growth Failure, and Thyroid Disease to the Postgraduate Pediatric Nurse Practitioner Program, Georgia State University, Nov 2005, June 2006, May 2007

Issues in Medicine, US Medical Congress Conference and Exhibition, Las Vegas, meeting planner and speaker, June, 2006

CME Presentations for the Georgia Chapter of the American Academy of Pediatrics Spring and Fall Meetings 2004-present

Pediatric Grand Rounds, Columbus Regional Medical Center, Columbus, GA, 2011-present

Human Growth Foundation Regional CME Conference, Atlanta GA March 2013, February 2014 Columbus Georgia

International Federation of Therapeutic Counseling Choice: Transgender Medicine, IFTCC Launch, October 15, 2018 London, Third International Congress, October 25 2018 Budapest.

Southern Pediatric Endocrine Society, Orlando FL, Feb 2019

Matthew Bulfin Conference, Indianapolis IN April 2019

CMDA annual conference, Ridgecrest NC, May 2019

Support 4 Family conference, London, UK June 2019

Audio Digest Pediatrics - ① v. 41, no. 4; ② v. 41, no. 20; ③ v. 43, no. 17

Audio Digest Family Practice - ① v. 42, no. 5; ② v. 44, no. 11; ③ v. 44, no. 44; ④ v. 45, no 15

Audio Digest Otolaryngology - ① v. 32, no. 14

CURRENT HOSPITAL APPOINTMENTS:

Eggleston/Scottish Rite Children's Hospitals, active staff, Pediatric Endocrinology

PAST AND CURRENT CLINICAL RESEARCH:

2006	Sanofi-Aventis HMR1964D/3001	study completed 2007
2006	Tercica MS301-	study completed 2008
2007	Tercica MS310-	study completed 2008
2007	Tercica MS306-	study completed 2010
2007	Tercica MS316-	study completed 2012
2008	EMD Serono 28358	study completed 2009
2012	Versartis 12VR2	study completed 2014
2012	Debiopharm 8206-CPP-301	study started July 2012
2013	Versartis 13 VR3	study started Dec 2013
2014	Novo-Nordisk Elipse	study started 2014
2015	Versartis 14 VR4	study completed 2017
2017	Mannkind MKC-TI-155	study completed 2019
2018	Abbvie M16-904	study started 2018
2019	Novo-Nordisk Real-4	study started 2019
2019	Lilly 18B-MC-ITSB	study started 2019
2021	Pfizer PROGRES	study started 2021

2021	Lumos OragrowtH210	study started July 2021
2022	Novo-Nordisk Real-8	study starts July 2022

LEGAL EXPERT WITNESS:

2017	North Carolina Legislature- transgender bathroom bill
2018	Jessica Siefert transgender case, Cincinnati, OH
2018	Alberta, Canada school system transgender case
2018	Decatur GA School Board transgender case
2019	British Columbia transgender case
2019	Gavin Grimm transgender case, Gloucester County, VA
2019	Rowe vs Isle of Wight School Board, UK
2019	Younger transgender case, Dallas, TX
2020	Alabama State House and Senate committee hearings
2020	Pennsylvania State House Health Subcommittee hearings
2020	Iowa State House committee hearing
2020	California State House committee hearing
2020	Harris Count TX custody case
2021	Missouri State House committee hearing
2021	NAACP *v* State of Arkansas

No. 22-11707

UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT

PAUL A. EKNES-TUCKER, et al.,
Plaintiffs-Appellees,

&

UNITED STATES OF AMERICA
Intervenor-Plaintiff-Appellee,

v.

GOVERNOR OF THE STATE OF ALABAMA, et al.,
Defendants-Appellants.

On Appeal from the United States District Court
for the Middle District of Alabama
Case No. 2:22-cv-184-LCB

APPELLANTS' APPENDIX VOLUME IV OF XIII

Christopher Mills
SPERO LAW LLC
557 East Bay St.,
#22251
Charleston, SC 29451
(843) 606-0640
cmills@spero.law

Steve Marshall
Attorney General
Edmund G. LaCour Jr.
Solicitor General
A. Barrett Bowdre
Thomas A. Wilson
Deputy Solicitors General
James W. Davis
Deputy Attorney General
Benjamin M. Seiss
Assistant Attorney General
STATE OF ALABAMA
OFFICE OF THE ATTORNEY GENERAL
501 Washington Ave.
Montgomery, AL 36130
(334) 242-7300
Edmund.LaCour@AlabamaAG.gov

July 5, 2022

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DEFENDANT'S EXHIBIT 5

UNITED STATES DISTRICTCOURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity As Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official Capacity as District Attorney for Jefferson County.

Defendants

CIVIL ACTION # 2:22-cv-00184-LCB-SRW

Expert Report of Paul W. Hruz, M.D., Ph.D.

Pursuant to 28 U.S.C. 1746, I declare:

1. RETAINED AS EXPERT WITNESS - VITAE: I have been retained by counsel for Defendants as an expert witness in connection with the above-captioned litigation. I have actual knowledge of the matters stated in this declaration. My professional background, experience, and publications are detailed in my curriculum vitae. A true and accurate copy of my CV is attached as Exhibit A to this declaration.

2. EDUCATION - ACADEMIC APPOINTMENTS: I received my Doctor of Philosophy degree from the Medical College of Wisconsin in 1993. I received my Medical Degree from the Medical College of Wisconsin in 1994. I am an Associate Professor of Pediatrics in the Division of Pediatric Endocrinology and Diabetes at Washington University School of Medicine. I also have a secondary appointment as Associate Professor of Cellular Biology and Physiology in the Division of Biology and Biological Sciences at Washington University School of Medicine. I served as Chief of the Division of Pediatric Endocrinology and Diabetes at Washington University from 2012-2017. I served as the Director of the Pediatric Endocrinology Fellowship Program at Washington University from 2008-2016. I am currently serving as Associate Fellowship Program Director at Washington University in St. Louis.

3. HISTORY OF BOARD CERTIFICATIONS: I am board certified in Pediatrics and Pediatric Endocrinology. I have been licensed to practice medicine in Missouri since 2000. I also have a temporary license to practice telemedicine in Illinois during the COVID-19 pandemic. My professional memberships include the American Diabetes Association, the Pediatric Endocrine Society, and the Endocrine Society.

4. SCIENTIFIC PUBLICATIONS IN PEER REVIEWED JOURNALS: I have published 60 scholarly articles over my academic career spanning over two decades. This includes

peer-reviewed publications in the leading journals in the fields of metabolism, cardiology, HIV, and ethics including the Gastroenterology, Circulation, Diabetes, Science Signaling, the Journal of Biological Chemistry and FASEB Journal. See my current Curriculum Vitae attached as Exhibit A.

5. EDITORIAL DUTIES - RESEARCH GRANTS: I have served as a Reviewer for a number of leading science journals in relevant fields including the Journal of Clinical Endocrinology and Metabolism, the Journal of Biological Chemistry, Diabetes, Scientific Reports and PlosOne. I have received over 4.6 million dollars in governmental and non-governmental funding for scientific research including grants from the National Institutes of Health, the American Diabetes Association, The American Heart Association, the March of Dimes, and the Harrington Discovery Institute. I am a member of the Alpha Omega Alpha Medical Honor Society and have received the Armond J. Quick Award for Excellence in Biochemistry, the Eli Lilly Award for Outstanding Contribution to Drug Discovery, and the Julio V. Santiago Distinguished Scholar in Pediatrics Award.

6. CLINICAL EXPERIENCE: During the more than 20 years that I have been in clinical practice, I have participated in the care of hundreds of infants and children, including adolescents, with disorders of sexual development. I was a founding member of the multidisciplinary Disorders of Sexual Development (DSD) program at Washington University. I continue to contribute to the discussion of complex cases and the advancement of research priorities in this field. In the care of these patients, I have acquired expertise in the understanding and management of associated difficulties in gender identification and gender transitioning treatment issues. I have trained and/or supervised hundreds of medical students, residents and clinical fellows in the practice of medicine.

7. PREVIOUS LEGAL CASES AS AN EXPERT WITNESS: Related to the litigation of issues of sex and gender, I have been designated as an expert witness in Joaquín Carcaño et al vs. Patrick McCrory (United States District Court, M.D. North Carolina), Jane Doe vs Board of Education of the Highland School District (United States District Court For the Southern District of Ohio Eastern Division, Case No. 2:16-CV-524), Ashton Whitaker vs. Kenosha Unified School District (United States District Court Eastern District of Wisconsin, Civ. Action No. 2:16-cv-00943), Adams vs. the School Board of St. John's County (United States District Court Middle District Of Florida Jacksonville Division, Case No. 3:17-cv-739-J-32JBT), Terri Bruce vs State of South Dakota (The United States District Court District of South Dakota Western Division, Case No. 17-5080), Kadel vs. Falwell (The United States District Court For The Middle District Of North Carolina, Case No.: 1:19-cv-272-LCB-LPA), Brandt v Rutledge (The United States District Court Eastern District of Arkansas Central Division, Case No. 4:21-CV-00450-JM), and Cause DF-15-09887-SD of the 255th Judicial Circuit of Dallas County, TX regarding the dispute between J.A. D.Y. and J.U. D.Y., Children. Only in the last case did I testify at trial. I have also served as a science consultant or subjected written testimony for court cases in Canada (B.C. Supreme Court File No. E190334) and Great Britain (Bell v Tavistock).

8. COMPENSATION: I am being compensated at an hourly rate for actual time devoted, at the rate of $400 per hour including report drafting, travel, testimony, and consultation. My compensation does not depend on the outcome of this litigation, the opinions I express, or the testimony I provide.

9. CONSULTS-DISCUSSIONS REGARDING THE RELEVANT SCIENCE and CLINICAL ISSUES: In my role as a scientist and as the Director of the Division of Pediatric Endocrinology at Washington University, I extensively studied the existing scientific research

literature related to the incidence, potential etiology, and treatment of gender dysphoria as efforts were made to develop a Transgender Medicine Clinic at Saint Louis Children's Hospital. I have participated in local and national meetings where the endocrine care of children with gender dysphoria has been discussed in detail and debated in depth. I have met individually and consulted with several pediatric endocrinologists (including Dr. Norman Spack) and other professionals specializing in sexual health (including Eli Coleman) who have developed and led transgender programs in the United States. I have also consulted with, met with, and had detailed discussions with dozens of parents of children with gender dysphoria to understand the unique difficulties experienced by this patient population. I continue to evaluate the ongoing experimental investigation of this condition. I am frequently consulted by other medical professionals to help them understand the complex medical and ethical issues related to this emerging field of medicine.

10. In my opinion, there is a serious lack of quality scientific evidence regarding the safety and efficacy of gender affirming medical interventions for individuals who exercise sex discordant gender identity. Use of such medical interventions remains a highly controversial and largely experimental approach.

Pediatric patients referred to our practice for the evaluation and treatment of gender dysphoria are cared for by an interdisciplinary team of providers that includes a psychologist and pediatric endocrinologist who have been specifically chosen for this role based upon a special interest and professional knowledge and training in this rare patient population. Due to the documented, important, ethical concerns regarding the safety, efficacy, and scientific validity of controversial, unproven, and experimental treatment paradigms, I have not personally engaged in the delivery of gender affirming medical interventions to children with gender dysphoria. Given the

unproven long-term benefits and the well-documented risks and harms of "transitioning" children, I decline to participate in such experimental treatments until the science has proven that the relative risks and benefits of this approach warrant such procedures.

My decision is strengthened by the knowledge that the vast majority of children who report gender dysphoria will, if left untreated, grow out of the problem — a natural coping-developmental process — and willingly accept their biological sex. Despite differences in country, culture, decade, follow-up length and method, multiple studies have come to a remarkably similar conclusion: Very few gender dysphoric children still want to transition by the time they reach adulthood. Many turn out to have been struggling with sexual orientation issues rather than Gender Discordant "transgender" identity. The exact number of children who experience realignment of gender identity with biological sex by early adult life varies by study. Estimates within the peer reviewed published literature range from 50-98%, with most reporting desistance in approximately 85% of children prior to the widespread adoption of the "gender affirmation only" approach. Thus, desistance (i.e., the child accepting their natal, biological sex identity and declining "transitioning" treatments) is the outcome for the vast majority of affected children who are not actively encouraged to proceed with sex-discordant gender affirmation. Since there are no reliable assessment methods for identifying the small percentage of children with persisting sex-gender identity discordance from the vast majority who will accept their biological sex, and since puberty blocking treatments, hormone transition treatments, and surgical transition treatments are all known to have potentially life-long devastating, negative effects on patients, I and many colleagues view it as unethical to treat children with an unknown future by using experimental, aggressive, and intrusive gender affirming medical interventions. See J. Cantor,

Ph.D. summary of multiple research studies at http://www.sexologytoday.org/2016/01/do-trans-kids-stay-trans-when-they-grow_99.html, and other publications reviewed in detail below).

11. PEER-REVIEWED, PUBLISHED RESEARCH IN CREDIBLE SCIENCE-MEDICAL JOURNALS: My opinions as detailed in this declaration are based upon my knowledge and direct professional experience in the subject matters discussed. The materials that I have relied upon are the same types of materials that other experts in my field of clinical practice rely upon when forming opinions on the subject including hundreds of published, peer reviewed scientific research (and professional) articles. As discussed in detail in this declaration, the extant published literature on the use of puberty blockers, cross-sex hormones and gender affirming surgeries are based, almost entirely, upon studies with major methodological limitations (see Hruz, P. W. Deficiencies in Scientific Evidence for Medical Management of Gender Dysphoria. *Linacre Q* 87, 34-42, doi:10.1177/0024363919873762 (2020). This includes:

- Significant recruitment biases including internet based convenience sampling
- Relatively small sample sizes for addressing a condition that is likely to be multi-factorial
- Short term follow up
- Lack of randomization to different treatment arms
- Failure to even consider alternate hypotheses
- Failure to include proper control groups and, in many studies NO control group at all
- Reliance on cross sectional sampling that may identify associations, but cannot establish causal relationships between intervention and outcome.

- A high rate of patients lost to follow up in longitudinal analyses which is relevant to questions of regret, desistance and completed suicide.
- Biased interpretation of study findings with a goal of validating *a priori* conclusions rather than seeking evidence to disprove the null hypothesis
- Ignoring starkly contradictory research documenting the lack of effectiveness of "transitioning" procedures, the low quality of research in this area, and the ongoing contentions and disagreements over this highly controversial, experimental medical field

12. PUBLIC DISCLOSURES OF THE METHODOLOGICAL FAILURES OF GENDER TRANSITIONING MEDICAL INTERVENTIONS: In addition to peer reviewed published research articles related to gender affirming medical interventions (see specific citations below), I also cite a wide variety of evidence documenting the recent, very public, disclosures of the multiple and serious methodological errors, failures, and defects of "transitioning treatment" research. Specific examples include:

THE BRANSTROM LONG-TERM TREATMENT OUTCOME STUDY: The historic Branstrom report is a peer reviewed, published, scientific journal article that documents a long-term treatment (10+ years) outcome research investigation testing the effects of hormonal and surgical "transitioning" treatments on patients. This historic research found *no reliable benefits from these disfiguring-sterilizing "treatments"* as well as evidence suggesting *increased* suicide attempts and anxiety disorders following the "gender transitioning" treatments. In addition, detailed methodological critiques discovered significant research errors by the authors that appear to support the investigative theory that the authors had initially attempted to manipulate

and misreport the findings of the study. (See, very detailed notes and review below with multiple citations). The authors ultimately recanted their initial misreporting and agreed that their study produced *no reliable evidence of benefits* for gender reassignment hormone and surgical treatments. The Branstrom study is truly a devastating and historic blow to the WORLD PROFESSIONAL ASSOCIATION FOR TRANSGENDER HEALTH's (WPATH) "treatment guidelines" and to the financially lucrative transgender "transitioning" treatment industry. Together with other evidence, this historic investigation has helped to generate a profound collapse of support for these experimental procedures across Europe. See *Correction of a Key Study: No Evidence of "Gender-Affirming" Surgeries Improving Mental Health.* https://segm.org/ajp_correction_2020. Accessed 29 June 2021. , Van Mol, A., Laidlaw, M., Grossman, M., & McHugh, P. (2020). *Gender-Affirmation Surgery Conclusion Lacks Evidence.* Am. J. Of Psych., 177(8), 765-766. (see detailed review below).

NATIONAL FINLAND REVIEW RECOMMENDS SUSPENDING TRANSITIONING TREATMENTS FOR CHILDREN AS EXPERIMENTAL and of UNCERTAIN BENEFIT: A National Science Review in FINLAND carefully examined all relevant science and suspended transition treatments for minors under age 16. See One Year Since Finland Broke with WPATH "Standards of Care." https://segm.org/Finland_devites_from_WPATH_prioritizing_psychotherapy_no_surgery_for_minors. The official review recommends that psychotherapy should be the first line of treatment for gender dysphoric youth. See 2020 Recommendation of the Council for Choices in Health Care in Finland (PALKO / COHERE Finland) Medical Treatment Methods for Dysphoria Related to Gender Variance In Minors, "Cross-sex identification in childhood, even in extreme cases, generally disappears during puberty…. The first-line treatment for gender dysphoria is psychosocial support and, as necessary, psychotherapy and

treatment of possible comorbid psychiatric disorders. … No gender confirmation surgeries are performed on minors." … "Potential risks of GnRH therapy include disruption in bone mineralization and the as yet unknown effects on the central nervous system"… "there are no medical treatments (for transitioning) that can be considered evidence-based… In cases of children and adolescents, ethical issues are concerned with the natural process of adolescent identity development, and the possibility that medical interventions may interfere with this process. It has been suggested that hormone therapy (e.g., pubertal suppression) alters the course of gender identity development; i.e., it may consolidate a gender identity that would have otherwise changed in some of the treated adolescents. The reliability of the existing studies with no control groups is highly uncertain, and because of this uncertainty, no decisions should be made that can permanently alter a still-maturing minor's mental and physical development…. A lack of recognition of comorbid psychiatric disorders common among gender-dysphoric adolescents can also be detrimental. Since reduction of psychiatric symptoms cannot be achieved with hormonal and surgical interventions, it is not a valid justification for gender reassignment. A young person's identity and personality development must be stable so that they can genuinely face and discuss their gender dysphoria, the significance of their own feelings, and the need for various treatment options. For children and adolescents, these factors are key reasons for postponing any interventions until adulthood…. In light of available evidence, gender reassignment of minors is an experimental practice." See One Year Since Finland Broke with WPATH "Standards of Care." https://segm.org/Finland_devites_from_WPATH_prioritizing_psychotherapy_no_surgery_for_minors.

SWEDEN'S FLAGSHIP KAROLINSKA HOSPTIAL SUSPENDS TRANSITIONING TREATMENTS FOR CHILDREN UNDER 16 AND REQUIRES RESEARCH OVERSIGHT FOR PATIENTS UNDER 18: In Sweden, the world-renowned Karolinska Hospital reviewed the current research and suspended pediatric gender transitions for patients under 16 outside of experimental, monitored clinical trials settings as of May 2021. Treatment will focus on psychotherapy and assessment. See Sweden's Karolinska Ends All Use of Puberty Blockers and Cross-Sex Hormones for Minors Outside of Clinical Studies. https://segm.org/Sweden_ends_use_of_Dutch_protocol. See also, Karolinska Policy Change K2021-3343 March 2021 (in English).pdf; Karolinska Hospital Ends the Use of Puberty Blockers for patients under 16: New policy statement from the Karolinska Hospital. The "Dutch protocol" for treating gender dysphoric minors has been discontinued over concerns of medical harm and uncertain benefits. This new Swedish policy is consistent with Finland's recently revised guidelines and changes in England's policies as well as the Arkansas legislation in the U.S. All have been changed to prioritize psychological interventions and social support in contrast to medical interventions, particularly for youth with no young childhood history of gender dysphoria (presently the most common patient presentation)" See Society for Evidence Based Gender Medicine Press Release at https://segm.org/Sweden_ends_use_of_Dutch_protocol and Karolinska Policy Change K2021-3343 March 2021 (English, unofficial translation).pdf Karolinska Guideline K2021-4144 April 2021 (English, unofficial translation).pdf

SWEDEN National review documents the lack of quality research in this controversial field. See Sweden Policy Review, Gender dysphoria in children and adolescents: an inventory of the literature, SBU Policy Support no 307, 2019 (https://www.sbu.se/307e) "This report

was commissioned by the Swedish government and is a scoping review of the literature on gender dysphoria in children and adolescents. The report can be a basis for further evaluation of risk of bias and evidence."…" The Swedish national review reported: "No relevant randomized controlled (treatment outcome) trials in children and adolescents were found." The review also reported … "Conclusions: — We have not found any scientific studies which explains the increase in incidence in children and adolescents who seek the heath care because of gender dysphoria — We have not found any studies on changes in prevalence of gender dysphoria over calendar time, nor any studies on factors that can affect the societal acceptance of seeking for gender dysphoria. — There are few studies on gender affirming surgery in general in children and adolescents and only single studies on gender affirming genital surgery. — Studies on long-term effects of gender affirming treatment in children and adolescents are few, especially for the groups that have appeared during the recent decennium….— Almost all identified studies are observational, some with controls and some with evaluation before and after gender affirming treatment. No relevant randomized controlled trials in children and adolescents were found. … We have not found any composed national information from Sweden on: — the proportion of those who seek health care for gender dysphoria that get a formal diagnosis nor — the proportion starting endocrine treatment to delay puberty nor — the proportion starting gender affirming hormonal treatment nor — the proportion subjected to different gender affirming surgery."

UK RESEARCHERS, COURTS, and OTHER REVIEWERS HIGHLIGHTED THE PAUCITY OF RESEARCH, LIMITATIONS, DEFECTS, and RISKS IN THE STILL EXPERIMENTAL "GENDER TRANSITIONING" TREATMENT FIELD:

The British official medical review office (NICE) published reports on transitioning science. See Cohen, D. and Barnes, H., BBC, "Evidence for puberty blockers use very low, says

NICE" … "The evidence for using puberty blocking drugs to treat young people struggling with their gender identity is "very low", an official review has found. The National Institute of Health and Care Excellence (NICE) said existing studies of the drugs were small and "subject to bias and confounding." The assessment of the evidence into the drugs was commissioned by NHS England. It is part of a review into gender identity services for children and young people. See https://arms.nice.org.uk/resources/hub/1070905/attachment. The NICE review noted it was difficult to draw conclusions from existing studies because of the way they had been designed. They were "all small" and did not have control groups, which are used to directly compare the effect of different treatments. There were other issues with the studies too, such as not describing what other physical and mental health problems a young person may have alongside gender dysphoria.

NICE also reviewed the evidence base for cross-sex hormones. See https://arms.nice.org.uk/resources/hub/1070871/attachment. The review found the evidence of clinical effectiveness and safety of cross-sex hormones was also of "very low" quality. "Any potential benefits of gender-affirming hormones must be weighed against the largely unknown long-term safety profile of these treatments in children and adolescents with gender dysphoria," NICE said. Both documents were prepared by NICE in October 2020 and will now help inform Dr. Hilary Cass's independent review into NHS gender identity services for children and young people. See also Carmichael P, Butler G, Masic U, et al. Short-term outcomes of pubertal suppression in a selected cohort of 12 to 15 year old young people with persistent gender dysphoria in the UK. medRxiv 2020.12.01.20241653; doi:https://doi.org/10.1101/2020.12.01.20241653. This British study conclusion noted: "We found no evidence of change (no improvement) in psychological function with GnRHa treatment as indicated by parent report (CBCL) or self-re-

port (YSR) of overall problems, internalizing or externalizing problems or self-harm…." Puberty blockers used to treat children aged 12 to 15 who have severe and persistent gender dysphoria had no significant effect on their psychological function, thoughts of self-harm, or body image, a study has found. However, as expected, the children experienced reduced growth in height and bone strength by the time they finished their treatment at age 16. See, also Dyer, C. Puberty blockers: children under 16 should not be referred without court order, says NHS England. BMJ2020;371:m4717.doi:10.1136/bmj.m4717 pmid:33268453. See, Dyer, C., Puberty blockers do not alleviate negative thoughts in children with gender dysphoria, finds study, BMJ 2021;372:n356 doi: https://doi.org/10.1136/bmj.n356 (Published 08 February 2021); see also Dyer, C. Puberty blockers do not alleviate [suicidal] negative thoughts in children with gender dysphoria, finds study. BMJ 372, n356, doi:10.1136/bmj.n356 (2021). https://www.medrxiv.org/content/10.1101/2020.12.01.20241653v1 BBC summary: https://www.bbc.com/news/uk-55282113journal.pone.0243894. pmid:33529227. See also, "Tavistock's Experimentation with Puberty Blockers: Scrutinizing the Evidence," TransgenderTrend.com, March 5, 2019. Regarding the UK's Tavistock and Portman NHS Trust's Gender Identity Development Service's experimental trial of puberty blockers for early teenagers with gender dysphoria. Oxford's Professor Michael Biggs wrote, "To summarize, GIDS launched a study to administer experimental drugs to children suffering from gender dysphoria."… "After a year on GnRHa [puberty blockers] children reported greater self-harm, and girls experienced more behavioral and emotional problems and expressed greater dissatisfaction with their body—so puberty blockers actually exacerbated gender dysphoria."

See also Griffin, L., Clyde, K., Byng, R., Bewley, S., Sex, gender and gender identity: a re-evaluation of the evidence. BJPsych Bulletin (2020) doi:10.1192/bjb.2020.73, Cambridge University Press, 21 July 2020, As Griffin, et al discussed, "As there is evidence that many psychiatric disorders persist despite positive affirmation and medical transition, it is puzzling why transition would come to be seen as a key goal rather than other outcomes, such as improved quality of life and reduced morbidity. When the phenomena related to identity disorders and the evidence base are uncertain, it might be wiser for the profession to admit the uncertainties". … "In addition, Griffin et al wrote: "Transgender support groups have emphasized the risk of suicide. After controlling for coexisting mental health problems, studies show an increased risk of suicidal behaviour and self-harm in the transgender population, although underlying causality has not been convincingly demonstrated. (See Marshall E, Claes L, Bouman WP, Witcomb GL, Arcelus J. Non-suicidal self-injury and suicidality in trans people: a systematic review of the literature. Int Rev Psychiatry 2016; 28: 58–69.). In sum, political activists and too many providers have used a fear of suicide to push experimental unproven, hazardous treatments.

REVIEW OF WPATH: A 2021 review found WPATH standards "incoherent." See Dahlen, Sara, et al. "International Clinical Practice Guidelines for Gender Minority/Trans People: Systematic Review and Quality Assessment." BMJ Open, vol. 11, no. 4, Apr. 2021, p. e048943. Both WPATH and Endocrine Society guidelines have recently been assessed for quality by a systematic review, which found them to be of low quality. Specific to WPATH, the reviewers noted the difficulty of even extracting clear recommendations, describing the WPATH guidelines as "incoherent." Standards of care should provide practitioners with evidence-based standards by which they may reliably inform the patient of projected outcomes, and do so with a

known error rate. Such data is the starting point for obtaining informed consent, which is not provided by either of these guidelines.

THE INDEPENDENT REVIEW OF GENDER IDENTITY SERVICES FOR CHILDREN AND YOUNG PEOPLE: INTERIM REPORT by Dr. Cass in the UK published in February 2022 concluded that "Evidence on the appropriate management of children and young people with gender incongruence and dysphoria is *inconclusive* both nationally and internationally." Dr. Cass notes that "There is lack of consensus and open discussion about the nature of gender dysphoria and therefore about the appropriate clinical response." (see https://cass.independent-review.uk/publications/interim-report/)

THE SOCIETY FOR EVIDENCE BASED GENDER MEDICINE (SEGM) REVIEW SUMMARIZES THE HEALTH RISKS of TRANSITIONING: Consistent with changes in Sweden, Finland, England, and Arkansas, SEGM published a research summary documenting the serious health risks of "transitioning treatments" compared to the well-known lack of evidence of reliable benefits for such treatments. See Science Studies – Health Risks of Medical and Surgical Gender Reassignment." SEGM at. https://www.segm.org/studies.

EXPERTS ARE CONCERNED WITH UNEXPLAINED DEMOGRAPHIC SHIFTS IN PATIENTS FOR WHOM PREVIOUS RESEARCH IS OF UNKNOWN USEFULNESS — For decades transgender patients were mostly older adults or very young boys. Over the last few years a tsunami of teenaged girls has flipped the demographics of transgender patients—now up to 7 to 1 teen girls. Many experts have noted that the previous research on trans patients cannot be relied upon when the patient group has so rapidly and mysteriously been transformed. In sum, the newly presenting cases are vastly overrepresented by adolescent females, the majority of whom also have significant mental health problems and neurocognitive comorbidities such as

autism-spectrum disorder or ADHD. See de Graaf, Nastasja M., and Polly Carmichael. "Reflections on Emerging Trends in Clinical Work with Gender Diverse Children and Adolescents." Clinical Child Psychology and Psychiatry, vol. 24, no. 2, Apr. 2019, pp. 353–64. The most recent evidence supports the emerging theory of social contagion as estimates of gender dysphoria-transgenderism are rocketing upwards from 1 in 10,000 to "the number of U.S. transgender-identified youth may be as high as 9%." See Kidd, Kacie M., et al. "Prevalence of Gender-Diverse Youth in an Urban School District." Pediatrics, vol. 147, no. 6, June 2021, p. e2020049823. This unexplained, radical transformations of demographics does not happen in actual illnesses (cancer, heart disease, anxiety disorders, etc), but is tragically consistent with previous mental health system disasters such as the once very rare "multiple personality disorder" and "recovered repressed memory" patients that radically increased in the 1990s. Dr. Thomas Steensma, a prominent investigator of the Dutch protocol—the original model for transitioning treatments—has recently noted that "[w]e don't know whether studies we have done in the past can still be applied to this time," specifically because of the unexplained surge in female adolescents reporting gender dysphoria. "Many more children are registering, but also of a different type… Suddenly there are many more girls applying who feel like a boy... now there are three times as many females as males." He concluded with the warning that "[w]e conduct structural research in the Netherlands. But the rest of the world is blindly adopting our research." See https://www.voorzij.nl/more-research-is-urgently-needed-into-transgender-care-for-young-people-where-does-the-large-increase-of-children-come-from/

A MARCH 2021 STUDY—WITH THE LARGEST SAMPLE YET—IS CONSISTENT WITH THE NEW DIRECTION OF FINLAND, SWEDEN, THE UK, and FRANCE—SHOWS THAT MOST YOUNG GENDER DYSPHORIA CHILDREN GROW

OUT OF THE PROBLEM WITH NO MEDICAL INTERVENTION. See Devita Singh1, Susan J. Bradley 2 and Kenneth J. Zucker, Frontiers in Psychiatry, March 2021, Volume 12, Article 632784, www.frontiersin.org. "Watchful Waiting" is the recommended treatment: In the past, 67% of children meeting the diagnostic criteria for gender dysphoria no longer had the diagnosis as adults, with an even higher, 93% rate of natural resolution of gender-related distress for the less significantly impacted cases. See also, e.g. Zucker, K. J. (2018). The myth of persistence: Response to "A critical commentary on follow-up studies and 'desistance' theories about transgender and gender non-conforming children" by Temple Newhook et al. (2018). International Journal of Transgenderism, 19(2), 231–245.

THE COCHRANE REVIEW FOUND INSUFFICIENT EVIDENCE OF BENEFITS: The widely respected Cochrane Review examined hormonal treatment outcomes for male-to-female transitioners over 16 years. They found "insufficient evidence to determine the efficacy or safety of hormonal treatment approaches for transgender women in transition." It is remarkable that decades after the first transitioned male-to-female patient, quality evidence for the benefit of transitioning is still lacking. See Haupt, C., Henke, M. et. al., Cochrane Database of Systematic Reviews Review - Intervention, Antiandrogen or estradiol treatment or both during hormone therapy in transitioning transgender women, 28 November 2020 and https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD013138.pub2/full.

13. A reasonable understanding of relative risk versus benefit for medical products or procedures is a fundamental obligation in providing appropriate clinical care. This is the bedrock standard of "evidence based medical practice." As detailed throughout this declaration, this foundational standard has never been met by the gender transition industry. As noted by Levine et al. "The risks of gender-affirmative care are ethically managed through a properly conducted

informed consent process. Its elements-deliberate sharing of the hoped-for benefits, known risks and long-term outcomes, and alternative treatments-must be delivered in a manner that promotes comprehension. The process is limited by: erroneous professional assumptions; poor quality of the initial evaluations; and inaccurate and incomplete information shared with patients and their parents" (Levine, S. B., Abbruzzese, E., & Mason, J. W. (2022). Reconsidering Informed Consent for Trans-Identified Children, Adolescents, and Young Adults. *Journal of sex & marital therapy*, 1–22. Advance online publication. https://doi.org/10.1080/0092623X.2022.2046221).

Differences between the gender transition industry's approach to gender dysphoria and the treatment of other medical conditions include not only the poor quality of evidence regarding safety and efficacy, but also attempts to silence standard scientific discussion and consideration of alternative hypotheses, failures to acknowledge existing data showing persistence of suicidality after intervening, the intentional impairment and destruction of normally formed and functioning male and female sexual organs to address psychological-psychiatric distress, the manipulation of language from standard medical definitions to accommodate novel ideology, and widespread failures in properly reporting research data related to gender transitioning. Each of these differences are discussed in detail in my declaration with appropriate examples and relevant scientific and professional citations.

When considering clinical practice guidelines, it is essential that physicians recognize the relative risks and benefits of such documents. If done properly, they can distill large data sets into actionable clinical recommendations. However, there is a long history of clinical practice guidelines that have later been found to be deficient, resulting in wasted medical resources, failure to achieve desired benefits, or to have caused substantial harm to patients. (See, e.g., Woolf, S. H., Grol, R., Hutchinson, A., Eccles, M., & Grimshaw, J. (1999). Clinical guidelines:

potential benefits, limitations, and harms of clinical guidelines. *BMJ (Clinical research ed.)*, 318(7182), 527–530. https://doi.org/10.1136/bmj.318.7182.527)

14. It is highly misleading to imply that the current Endocrine Society guidelines, first published in 2009 and revised in 2017 represent the opinions of the Societies 18,000 members. (Hembree, W. C., Cohen-Kettenis, P., Delemarre-van de Waal, H. A., Gooren, L. J., Meyer, W. J., 3rd, Spack, N. P., Tangpricha, V., Montori, V. M., & Endocrine Society (2009). Endocrine treatment of transsexual persons: an Endocrine Society clinical practice guideline. *The Journal of clinical endocrinology and metabolism*, *94*(9), 3132–3154. https://doi.org/10.1210/jc.2009-0345; Hembree, W. C., Cohen-Kettenis, P. T., Gooren, L., Hannema, S. E., Meyer, W. J., Murad, M. H., Rosenthal, S. M., Safer, J. D., Tangpricha, V., & T'Sjoen, G. G. (2017). Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline. *The Journal of clinical endocrinology and metabolism*, *102*(11), 3869–3903. https://doi.org/10.1210/jc.2017-01658). The committee that drafted these guidelines was composed of *less than a dozen* self-selected members. The guidelines were never submitted to the entire membership for comment and approval prior to publication. They also did not undergo external review. Such political methodologies are common in association "statements" and "endorsement" and not at all scientific nor reliable nor valid.

15. The hazard of making treatment recommendations based on studies with major methodological weaknesses can be readily seen by considering representative studies used by advocates of medical gender affirmation to justify this approach.

15A. For example, the study by De Vries and colleagues (de Vries AL, Steensma TD, Doreleijers TA, Cohen-Kettenis PT. Puberty suppression in adolescents with gender identity disorder: a prospective follow-up study. *J Sex Med*. 2011;8(8):2276-2283) is often cited to support

longitudinal evidence of benefit from pubertal blockade. Although improvements in mood improved and the risk of behavioral disorders with pubertal blockade were found over baseline, in this study there was no control group. Thus, the authors were unable to determine the basis of this improvement. The authors acknowledge that psychological support or other reasons may have contributed to (or wholly caused) this observation. It is also important to note that gender dysphoria itself *did not diminish* in study subjects, and there were *no changes* in body image-related distress.

15B. The study by Turban and colleagues (Turban, J. L., King, D., Carswell, J. M., & Keuroghlian, A. S. (2020). Pubertal Suppression for Transgender Youth and Risk of Suicidal Ideation. *Pediatrics*, *145*(2), e20191725) is often cited as proof that pubertal blockade prevents suicide in transgender youth. However, this study used an unreliable, biased sampling methodology. As stated in the paper, the authors considered "a cross-sectional online survey of 20,619 transgender adults aged 18 to 36 years" from the 2015 U.S Transgender Survey. This was an online survey of transgender and "genderqueer" adults recruited from trans-friendly websites. Among the many problems with this sampling methodology, there is NO evidence of study subject identities, NO way to assess for potential false subjects, and NO medical diagnosis for entry. No causation can be determined from this retrospective, cross-sectional design. Furthermore, the study failed to even assess Desisters and Regretters. Turban claimed that desisters and regretters would "not be likely" in this study group, which also only included adults. Thus, the study "does not include outcomes for people who may have initiated pubertal suppression and subsequently no longer identify as transgender." Turban's misleading claim of lower suicidal ideation for treated patients excluded the most seriously mentally ill patients that would have been DENIED affirmation treatment. Those who received treatment with pubertal suppression, when compared

with those who wanted pubertal suppression but did not receive it, had lower odds of lifetime suicidal ideation (adjusted odds ratio = 0.3; 95% confidence interval = 0.2– 0.6). In Table 3 of the paper, under "Suicidality (past 12 months)" reductions for suppressed group v non-suppressed were seen for ideation (50.6% v 64.8%) and "ideation with plan" (55.6% v 58.2%). However, it is important to note that suicidal "ideation with plan and suicide attempt" for the suppressed group INCREASED after treatment to 24.4% v 21.5% for the "non-treatment group." The most clinically significant result in this study — that "Affirmation Treatments INCREASED SERIOUS SUICIDE ATTEMPTS — was IGNORED BY THE AUTHORS (i.e., not statistically significant but clinically significant) = "Suicide attempts resulting in inpatient care" = 45.5% for suppression groups vs 22.8% for those who did not receive pubertal suppression. It would be most reasonable to conclude from an observation of 45% attempted suicide in the treated arm that the intervention was unsuccessful in improving health. Turban et al. ignored their own finding that a history of puberty suppression was associated with an INCREASE in recent serious suicide attempts. In sum, the Turban 2020 Pediatrics study, based on an unverified US Transgender Online Survey, tells us little about the effects of puberty suppression on children with gender dysphoria. (See, Michael Biggs, Puberty Blockers and Suicidality in Adolescents Suffering from Gender Dysphoria. Archives of Sexual Behavior, accepted 14 May 2020, DOI: 10.1007/s10508-020-01743-6 and the multiple Letters to the Editor that criticized the multiple methodological errors in this study, https://pediatrics.aappublications.org/content/145/2/e20191725/tab-e-letters#re-pubertal-suppression-for-transgender-youth-and-risk-of-suicidal-ideation)

15C. The 2021 study of Bustos, et al., (Bustos, V. P., Bustos, S. S., Mascaro, A., Del Corral, G., Forte, A. J., Ciudad, P., Kim, E. A., Langstein, H. N., & Manrique, O. J. (2021). Regret

after Gender-affirmation Surgery: A Systematic Review and Meta-analysis of Prevalence. *Plastic and reconstructive surgery. Global open*, *9*(3), e3477) attempts to provide a systematic review of 27 observational or interventional studies that report on regret or detransition following gender-transition surgeries. A total of 7928 subjects were included in their meta analysis. The authors concluded that only 1% or less of those who had gender-transition surgeries expressed regret. It is important to understand the serious methodological limitations and high risk of bias contained within the analysis in the 2021 Bustos et al. study (see Expósito-Campos, P., & D'Angelo, R. (2021). Letter to the Editor: Regret after Gender-affirmation Surgery: A Systematic Review and Meta-analysis of Prevalence. *Plastic and reconstructive surgery. Global open*, *9*(11), e3951). This includes failure to include major relevant studies addressing this question (e.g. Dhejne, C., Öberg, K., Arver, S., & Landén, M. (2014). An analysis of all applications for sex reassignment surgery in Sweden, 1960-2010: prevalence, incidence, and regrets. *Archives of sexual behavior*, *43*(8), 1535–1545), inaccurate analysis within one of the studies considered **(**Wiepjes CM, Nota NM, de Blok CJM, et al. The Amsterdam Cohort of Gender Dysphoria Study (1972–2015): Trends in Prevalence, Treatment, and Regrets. J Sex Med 2018; 15: 582–590) and the general lack of controlled studies, incomplete and generally short-term follow-up, large numbers of lost subjects, and lack of valid assessment measures in the published literature addressing this question. As noted by Expósito-Campos and D'Angelo (2021), moderate to high risk of bias was present in 23 of the 27 studies included in the analysis. Furthermore, 97% of subjects analyzed were found within studies deemed to be of fair to poor scientific quality. Thus, this study cannot be used as strong support for the contention that regret is rare.

15D. The 2018 paper by Wiepjies, et al. (Wiepjes, C. M., Nota, N. M., de Blok, C., Klaver, M., de Vries, A., Wensing-Kruger, S. A., de Jongh, R. T., Bouman, M. B., Steensma, T.

D., Cohen-Kettenis, P., Gooren, L., Kreukels, B., & den Heijer, M. (2018). The Amsterdam Cohort of Gender Dysphoria Study (1972-2015): Trends in Prevalence, Treatment, and Regrets. *The journal of sexual medicine*, *15*(4), 582–590) is a retrospective review of records from all patients of the Center of Expertise on Gender Dysphoria gender clinic in Amsterdam from 1972-2015. While the study appears to report on the regret rates among a large cohort of adolescents (812) and children (548), regret is only reported for children and adolescents who had undergone gonadectomy once over 18 years of age. Of the adolescents, 41% started puberty suppression. Of those who started GnRH agonists, only 2% stopped this intervention (meaning that 98% of those who started puberty suppression progressed to cross-sex hormone therapy). An additional 32%, having already completed puberty, started cross-sex hormone therapy without use of a GnRH agonist. Classification of regret was very stringent, requiring physician documentation of patient verbalized regret after gonadectomy and start of sex-concordant hormones to treat the iatrogenic hypogonadism. This means there are significant limitations to the conclusions that can be drawn from 2018 paper by Wiepjies, et al. There is no discussion in this paper regarding adolescent regret of use of puberty blockers, cross-sex hormones or mastectomies. Importantly 36% of patients were lost to follow up. This is notable given that gonadectomy iatrogenically induces the pathologic state of primary hypogonadism. Affected patients have a lifelong dependency for exogenously administered sex-steroid hormones, and thus an acute need for ongoing follow-up. The number of lost subjects who experienced regret or completed suicides is unknown. It is also significant that the average time to regret was 130 months. The authors themselves acknowledge that it may be too early to predict regret in patients who started hormone therapy in the past 10 years.

15E. The 2021 study by Narayan et al (Narayan, S. K., Hontscharuk, R., Danker, S., Guerriero, J., Carter, A., Blasdel, G., Bluebond-Langner, R., Ettner, R., Radix, A., Schechter, L., & Berli, J. U. (2021). Guiding the conversation-types of regret after gender-affirming surgery and their associated etiologies. *Annals of translational medicine*, *9*(7), 605) examines anonymous survey results from 154 surgeons affiliated with WPATH. The response rate for this survey was 30%. Of the respondents, 57% had encountered patients with surgical regret. It is important to recognize that this study was specifically directed toward patients who had undergone surgical transition. Acknowledged biases of this study include selection bias, recall bias, and response bias. This type of study cannot accurately identify the prevalence in the transgender population as a whole, and is particularly limited in the ability to assess potential for regret in the pediatric population.

15F. The 2018 Olson-Kennedy paper (Olson-Kennedy J, Warus J, Okonta V, Belzer M, Clark LF. Chest Reconstruction and Chest Dysphoria in Transmasculine Minors and Young Adults: Comparisons of Nonsurgical and Postsurgical Cohorts. *JAMA Pediatr.* 2018;172(5):431–436) presents the results of a survey of biologically female patients with male gender identity at the lead author's institution using a novel rating system for "chest dysphoria" created by the study authors. There were an equal number (68) of nonsurgical and post-surgical subjects surveyed. Those who had undergone bilateral mastectomies were reported to have less chest dysphoria than those who did not receive this intervention. Limitations of this study include convenience sampling of nonsurgical study subjects with high potential for selection bias, cross-sectional design, and lack of validation of the primary outcome measure. Test validation is particularly relevant in assessing adolescent questionnaires due to a variety of cognitive and situational

factors in this population (see Brener, N.D., J. Billy, and W.R. Grady. 2003. "Assessment of Factors Affecting the Validity of Self-Reported Health-Risk Behavior among Adolescents: Evidence from the Scientific Literature." *Journal of Adolescent Health* 33 (6): 436–57). Rigorous validation methods have been previously used in several other established questionnaires addressing adolescent self-perception (see Palenzuela-Luis, N., Duarte-Clíments, G., Gómez-Salgado, J., Rodríguez-Gómez, J. Á., & Sánchez-Gómez, M. B. (2022). Questionnaires Assessing Adolescents' Self-Concept, Self-Perception, Physical Activity and Lifestyle: A Systematic Review. *Children (Basel, Switzerland)*, *9*(1), 91). As previously noted, this study cannot provide information about a causal relationship between the intervention and outcome observed.

15G. The 2021 Almazan study (Almazan, A.N. & A.S. Keuroghlian. (2021). Association Between Gender-Affirming Surgeries and Mental Health Outcomes. *JAMA Surgery, 156*(7): 611–618) attempts to address mental health outcomes in relation to gender-transition surgery. As previously noted, this study relies upon data from the 2015 US Transgender Survey. Limitations and weaknesses of this survey tool includes convenience sampling, recruitment of patients through transgender advocacy organizations, demand bias (a.k.a. the good subject effect), a high number of respondents who reported having not transitioned medically or surgically (and reported no desire to do so in the future), and several data irregularities. One notable data irregularity was that a high number of respondents reported that their age was exactly 18 years. As noted by D'Angelo and colleagues, these irregularities raise serious questions about the reliability of the USTS data (D'Angelo, R., et al. (2021). One Size Does Not Fit All: In Support of Psychotherapy for Gender Dysphoria. *Archives of sexual behavior*, *50*(1): 7–16. https://doi.org/10.1007/s10508-020-01844-2), and therefore, the reliability of conclusions based on that data.

15H. In his declaration, Dr. Rosenthal cites the 2021 paper by Green et al (Association of Gender-Affirming Hormone Therapy With Depression, Thoughts of Suicide, and Attempted Suicide Among Transgender and Nonbinary Youth. *J Adolescent Health* 1-7 (2021) to support his assertion that gender affirming therapy lowers depression and suicide. Similar to the major methodological weaknesses noted above, this study relied upon a non-probability convenience sample of youth who identified as LGBTQ. Recruitment was made by targeted ads on Facebook, Twitter and Snapchat. In addition to the inherent bias of such study methodology, the data obtained by cross-sectional analysis cannot determine whether there is a causal relationship between access to gender affirming medical interventions and changes in depression or suicide.

15I. Rosenthal's citation of the paper by Turban et al (Access to gender-affirming hormones during adolescence and mental health outcomes among transgender adults. PLoS ONE 17(1) 2021; https://doi.org/10.1371/journal. pone.0261039) is similarly misleading as this study relied upon data from the same 2015 US transgender survey for which the major methodological weaknesses were discussed in detail above (¶15B)

16. There are major and highly significant differences between male and female responses to many drugs including sex hormones. (See, e.g., Madla, C. M., Gavins, F., Merchant, H. A., Orlu, M., Murdan, S., & Basit, A. W. (2021). Let's talk about sex: Differences in drug therapy in males and females. *Advanced drug delivery reviews*, 113804. Advance online publication. https://doi.org/10.1016/j.addr.2021.05.014). Giving estrogen to a biological male is not equivalent to giving the same hormone to a biological female. Likewise, giving testosterone to a biological female is not equivalent to giving the same hormone to a biological male. (See for example Soldin, O. P., & Mattison, D. R. (2009). Sex differences in pharmacokinetics and pharmacodynamics. Clinical pharmacokinetics, 48(3), 143–157 and Pogun S., Yararbas G. (2010) Sex

Differences in Drug Effects. In: Stolerman I.P. (eds) Encyclopedia of Psychopharmacology. Springer, Berlin, Heidelberg.). Differences are not limited to pharacokinetic effects but are present even at the cellular level. (See, e.g., Walker, C. J., Schroeder, M. E., Aguado, B. A., Anseth, K. S., & Leinwand, L. A. (2021). Matters of the heart: Cellular sex differences. *Journal of molecular and cellular cardiology*, S0022-2828(21)00087-0. Advance online publication. https://doi.org/10.1016/j.yjmcc.2021.04.010). Failure to acknowledge these differences can have tragic consequences. For example, in addition to the inherent sterilizing effect of cross-sex hormone administration, non-physiological levels of estrogen in males has been shown to increase the risk of thromboembolic stroke above the incidence observed in females (e.g. Getahun, D., Nash, R., Flanders, W. D., Baird, T. C., Becerra-Culqui, T. A., Cromwell, L., Hunkeler, E., Lash, T. L., Millman, A., Quinn, V. P., Robinson, B., Roblin, D., Silverberg, M. J., Safer, J., Slovis, J., Tangpricha, V., & Goodman, M. (2018). Cross-sex Hormones and Acute Cardiovascular Events in Transgender Persons: A Cohort Study. *Annals of internal medicine*, *169*(4), 205–213. https://doi.org/10.7326/M17-2785).

17. The claim that adolescents with persistent gender dysphoria after reaching Tanner Stage 2 *almost always* persist in their gender identity in the long-term whether or not they were provided gender affirming care is not supported by high quality scientific evidence. Frequent citation of a book chapter by Turban, De Vries and Zucker does not provide evidence in support of this claim. Within the chapter cited it states, "The natural history of gender identity for children who express gender nonconforming or transgender identities is an *area of active research.*" Only a single reference is found, and this is itself another book (Cohen-Kettenis PT, Pfäfflin F: Transgenderism and Intersexuality in Childhood and Adolescence: Making Choices.

London, Sage, 2003). Within the text of the Cohen-Kettenis book, *there is no experimental evidence to support the assertion that nearly all Tanner stage adolescents have persistent transgendered identity*. In fact, *in Chapter 4 of this text, evidence is presented that the majority of evaluated subjects did not have persistence* but rather eventually presented as homosexual adults. Cited references for this outcome include: Green, R. (1987). The "sissy boy syndrome" and the development of homosexuality. New Haven, CT: Yale University Press.; Money, J., & Russo, A. J. (1979). Homosexual outcome of discordant gender identity/role: Longitudinal follow-up. Journal of Pediatric Psychology,4, 29-41.; Zucker, K. J., & Bradley, S. J. (1995). Gender identity disorder and psychosexual problems in children and adolescents. New York/London: Guilford Press.; Zuger, B. (1984). Early effeminate behavior in boys: Outcome and significance for homosexuality. Journal of Nervous and Mental Disease, 172, 90-97.

18. Serious Methodological Limitations, Flaws, and Defects in the Gender Transition Industry's Methods for the Diagnostic-Labelling of "Gender Dysphoria": The DSM (Diagnostic and Statistical Manual of the American Psychiatric Association) involves an often controversial consensus seeking, (not scientific evidence seeking), political-voting process that began historically as an attempt to construct a reliable dictionary for psychiatry. The DSM has historically included unreliable, since debunked, diagnoses such as "multiple personality disorder" that fueled a harmful "craze" damaging vulnerable patients until scientists, legal professionals, juries, and licensing boards put a stop to it. (See the detailed discussion below). It is important for legal professionals to understand that the DSM was created using a consensual, political process of committees and voting and does not depend upon an evidence-based, uniformly valid and reliable scientific process. Small groups of professionals, often with ideological agendas, can form

committees and create "diagnoses" to be "voted" into the DSM. Much of DSM content is decided by the "voting" of small committees of advocates and activist practitioners whose judgment may suffer from significant financial conflicts of interest — as appears to be the case with all three of the plaintiffs' experts in this case.

19. Well-Documented Methodological Limitations, Flaws, and Defects in Gender Identity ("Transgender") Subjective Clinical Assessments: The clinical assessment methodology in sex discordant gender medicine is currently limited to self-report information from patients without objective scientific markers, medical tests, or scientific assessment tools. There are no reliable radiological, genetic, physical, hormonal, or biomarker tests that can establish gender identity or reliably predict treatment outcomes. A few hours of conversation with often poorly trained social workers often provides the only gatekeeping process to severe and irreversible iatrogenic surgical and hormonal injuries. Most importantly, *the long-term effects of "transitioning" have never been scientifically validated*. No valid-reliable methodology for such assessments has been accepted by the relevant scientific community and it appears that no known error rates for such assessments have ever been published. A more detailed discussion of the foundational science documenting the limitations and methodological defects in this field is offered below.

20. Essential Methodological Problems in the Gender Transition Industry: The research is characterized by sampling errors, the misreporting of findings, the misreporting of relevant history, misquoting of research studies, low quality research designs, failures to complete randomized clinical trials, and widespread confirmation bias, including the failure to properly explore alternative hypotheses (e.g., social contagion, mental illness, complex developmental processes, family dynamics, etc.), and other failures of basic scientific methodology. It is essential to properly consider alternative theories/hypotheses for the rapid and nearly exponential increase

of transgender cases—such as social contagion, mental illness, and/or complex developmental processes—especially as reportedly driven by news media, social media "YouTube "influencers" (who reportedly sell "transitioning" to vulnerable youth on social media), educational systems (that reportedly pressure 1st graders to "identify as non-binary"), as well as political-activist "pro-transition" health care workers (too few of whom seem to have carefully reviewed and understood the relevant scientific history and ongoing controversies in this field).

21. TERMINOLOGY - BIOLOGICAL SEX: Biological sex is a term that specifically refers to a member of a species in relation to the member's capacity to either donate (male) or receive (female) genetic material for the purpose of reproduction. Sex thus cannot be "assigned at birth" because it is permanently determined by biology at conception. This remains the standard definition that has been accepted by the relevant scientific community and used worldwide by scientists, medical personnel, and society in general for decades. The scientific and clinical measurement of sex is done with highly reliable and valid objective methodologies. Visual medical examination of the appearance of the external genitalia is the primary methodology used by clinicians to recognize sex. In cases where genital ambiguity is present, additional testing modalities including chromosomal analysis, measurement of hormone levels, radiographic imaging of internal sexual anatomy and biological response to provocative testing are utilized. The measurement and assessment of biological sex has been documented by valid-reliable research published in credible journals, and is accepted by the relevant scientific community. The error rate for the measurement and assessment of biological sex is very low, below 1%.

22. TERMINOLOGY - GENDER: Gender, a term that had traditionally been reserved for grammatical purposes, is currently used to describe the psychological and cultural characteristics of a person in relation to biological sex. Gender in such new definitions would therefore

exist only in reference to subjective personal perceptions and feelings and societal expectations, but not biology. The term "gender" is currently used in a variety of ways and has thus become a controversial and unreliable term that means different things to different observers often varying according to political and ideological positions. The only definition of gender accepted by the worldwide, relevant scientific (biology, genetics, neonatology, zoology, medicine, etc.) community retains the historic biological connection to reproductive purpose with other definitions mired in controversy. The reliability and validity of various usages of the term "gender" is currently quite controversial and the relevant scientific community has accepted no use other than in relation to biological sex, which includes participate in activities related to reproduction. The serious dangers of incorrectly using the term "gender" is acknowledged by the Endocrine Society (Bhargava, A., Arnold, A. P., Bangasser, D. A., Denton, K. M., Gupta, A., Hilliard Krause, L. M., Mayer, E. A., McCarthy, M., Miller, W. L., Raznahan, A., & Verma, R. (2021) Considering Sex as a Biological Variable in Basic and Clinical Studies: An Endocrine Society Scientific Statement. *Endocrine reviews*, bnaa034. Advance online publication. https://doi.org/10.1210/endrev/bnaa034). In addition, the error rate for multiple uses of the term "gender" outside of the accepted biologically related use is unknown, untested, and unpublished. The measurement and assessment of biological sex and gender has been documented by valid-reliable research published in credible journals, and is accepted by the relevant scientific community. The error rate for the measurement and assessment of biological sex and gender is very low, below 1%.

23. TERMINOLOGY - GENDER IDENTITY: Gender identity refers to a person's individual experience and perception and unverified verbal patient reports of how they experience being male or female or a combination of these or other categories. The term "gender identity" is

currently controversial. It is a term that means very different things to different observers often varying according to political, ideological, religious, and other factors. There is no current worldwide definition of "gender identity" accepted by the relevant scientific (cf. clinical) community. The reliability and validity of the term "gender identity" is controversial and not accepted by the relevant scientific community. The measurement error rate for non-biological "gender identity" is unknown, untested, and unpublished and could be very high.

24. TERMINOLOGY - SEXUAL ORIENTATION: Sexual orientation refers to a person's enduring pattern of arousal and desire for intimacy with males, females, or both.

25. TERMINOLOGY - DNA and CHROMOSOMES: Sex is genetically encoded at the moment of conception due to the presence of specific DNA sequences (i.e. genes) that direct the production of signals that influence the formation of the bipotential gonad to develop into either a testis or ovary. This genetic information is normally present on X and Y chromosomes. Chromosomal sex refers to the normal complement of X and Y chromosomes (i.e. normal human males have one X and one Y chromosome whereas normal human females have two X chromosomes). Genetic signals are mediated through the activation or deactivation of other genes and through programmed signaling of hormones and cellular transcription factors. The default pattern of development in the absence of external signaling is female. The development of the male appearance (phenotype) depends upon active signaling processes.

26. BIOLOGICAL SEX IS BINARY—NOT A CONTINUUM—FOR 99%+ of MAMMALS INCLUDING HUMANS: For members of the human species (and virtually all mammals), sex is normatively aligned in a binary fashion (i.e., either male or female) in relation to biologic purpose. The presence of individuals with disorders of sexual development (along the

range of the established Prader scale) does not alter this fundamental reality. Medical recognition of an individual as male or female is correctly made at birth in nearly 99.98% of cases according to external phenotypic expression of primary sexual traits (i.e., the presence of a penis for males and presence of labia and vagina for females). The recognition of an individual as male or female made at birth according to biological features has been documented by valid-reliable research published in credible journals, and is generally accepted by the relevant scientific community. The error rate for the measurement and assessment of an individual as male or female made at birth according to biological features is very low indeed, certainly below 1%.

27. THE GENITAL-BIOLOGICAL FUNCTION OF REPRODUCTION: Due to genetic and hormonal variation in the developing fetus, normative development of the external genitalia in any individual differs with respect to size and appearance while maintaining an ability to function with respect to biologic purpose (i.e. reproduction). Internal structures (e.g. gonad, uterus, vas deferens) normatively align in more than 99.9%+ of mammals with external genitalia, including humans. In my opinion, this view is generally accepted by the relevant scientific communities in endocrinology, neonatology, developmental biology, genetics, and other relevant fields. In my opinion, all relevant sciences agree that the development of genital structures is intrinsically oriented to biological reproduction.

28. BIOLOGICAL ASSESSMENT OF SEX: Reliance upon external phenotypic expression of primary sexual traits is a highly accurate, reliable and valid means to assign biologic sex. In over 99.9% of cases, this designation will correlate with internal sexual traits and capacity for normal biologic sexual function. Sex is therefore not "assigned at birth" but is rather recognized at birth. In my opinion, this view is generally accepted by the relevant scientific communities in endocrinology, psychiatry, neonatology, biology, genetics, gynecology, and other fields.

29. DISORDERS OF SEXUAL DEVELOPMENT ARE VERY RARE: Due to the complexity of the biological processes that are involved in normal sexual development, it is not surprising that a very small number of individuals are born with defects in this process (1 in 5,000 births). Defects can occur through either inherited or de *novo* mutations in genes that are involved in sexual determination or through environmental insults during critical states of sexual development. Persons who are born with such abnormalities are considered to have a disorder of sexual development (DSD). Most often, this is first detected as ambiguity in the appearance of the external genitalia. Such detection measurements are reliable and valid and accepted by the relevant scientific community. In my opinion, this view is generally accepted by the relevant scientific communities in endocrinology, neonatology, gynecology, psychiatry, biology, genetics, and other fields. See Leonard Sax (2002) How common is lntersex? A response to Anne Fausto-Sterling, The Journal of Sex Research, 39:3, 174-178, DOI: 10.1080/00224490209552139

DISORDERS OF SEXUAL DEVELOPMENT ARE NOT A THIRD SEX: Normal variation in external genital appearance (e.g. phallic size) does not alter the basic biologic nature of sex as a binary trait. "Intersex" conditions represent disorders of normal development, not a third sex. In my opinion, this view is generally accepted by the relevant scientific communities in endocrinology, urology, surgery, neonatology, gynecology, psychiatry, biology, genetics, and other fields.

30. DISORDERS OF SEXUAL DEVELOPMENT REQUIRE ASSESSMENTS OF OBJECTIVE EVIDENCE: The medical care of persons with disorders of sexual development (DSDs) is primarily directed toward identification of the etiology of the defect and treatment of any associated complications. Similar to other diseases, diagnostic tools such as the Prader scale are used to assess, measure, and assign a "stage" to the severity of the deviation from normal

(e.g. assessments of objective, reliable evidence). In children with DSDs, characterization based upon phenotype alone does not reliably predict chromosomal sex nor does it necessarily correlate with potential for biological sexual function. Decisions on initial sex assignment in these very rare cases require detailed assessment of objective, reliable medical evidence by a team of expert medical providers. In my opinion, this view is generally accepted by the relevant scientific communities in endocrinology, urology, surgery, neonatology, gynecology, psychiatry, biology, genetics, and other fields.

31. INTERSEX CONDITIONS REQUIRE PROPER CONSIDERATION OF ALTERNATIVE HYPOTHESES AND TREATMENT PLANS: Standard medical practice in the treatment of persons with DSDs has evolved with growing understanding of the physical, psychological, and psychiatric needs and outcomes for affected individuals. Previously, it was felt that a definitive sex assignment was necessary shortly after birth with the belief that this would allow patients with a disorder of sexual development to best conform to the assigned sex and so parents-caregivers could help socialize the child to the assigned sex. Current practice is to defer sex assignment until the etiology of the disorder is determined and, if possible, a reliable prediction can be made on likely biologic and psychologic outcomes. When this cannot be done with confidence, a presumptive sex assignment is made. Factors used in making such decisions include chromosomal sex, phenotypic appearance of the external genitalia, and parental desires. The availability of new information can, in rare circumstances, lead to sex reassignment. Decisions on whether to surgically alter the external genitalia to align with sex are generally deferred until the patient is able to provide consent. See Lee, P. A. et al. Global Disorders of Sex Development Update since 2006: Perceptions, Approach and Care. Horm Res Paediatr 85, 158-180, doi:10.1159/000442975 (2016)). In my opinion, this view is generally accepted by the relevant

scientific communities in endocrinology, urology, surgery, neonatology, gynecology, psychiatry, biology, genetics, and other fields.

32. METHODOLOGICAL DEFECTS of the GENDER TRANSTION INDUSTRY - WHY IS THE TRANSGENDER MEDICINE FIELD STILL SO CONTROVERSIAL AFTER DECADES OF RESEARCH?:

- Despite several highly defective research efforts, the gender transition industry has failed to prove long term benefits that outweigh the reported harms, dangers, and serious injuries of "gender affirmation" interventions—including inability to reach orgasm, vaginal atrophy, compromised cognitive function, lifelong reliance on medication and repeated surgical intervention to deal with the cumulative effects of these iatrogenic harms, stunted growth, damage to social support systems, and increased risk of serious suicide attempts.
- The gender transition industry has repeatedly presented false, deceptive, and misleading information to the public and to patients regarding the known risks, dangers, injuries and benefits of "affirmation treatments." (E.g. the Bränström, Turban, and related research errors of omission and misreporting.)
- The Gender Transition Industry has failed to generate reliable and valid treatment outcome research sufficient to support this risky medical experiment. (E.g., the national reviews of England (NICE), Sweden, Finland, Cochrane review, etc).
- Because of the lack of competent, valid, peer reviewed published research support, the gender transition industry relies upon support from "professional associations." Yet such associations are engaged in consensus-seeking-political voting methodologies and not evidence-based, peer reviewed science. Such political-

professional associations have made similar, disastrous mistakes in the past. For example, the American Medical Association supported racist, "junk" science eugenics "treatments" in the 1930s and the American Psychiatric Association did not act to prevent or halt the harms of the repressed-memory/multiple personality industry of the 1990s.

33. METHODOLOGICAL DEFECTS of the GENDER TRANSITION INDUSTRY INCLUDE LIMITATIONS and HAZARDS OF RELYING ON UNVERIFIED PATIENT SELF-REPORT DATA WITH NO OBJECTIVE EVIDENCE: In contrast to disorders of sexual development, gender dysphoria cannot be reliably, objectively assessed, as it is based on patient self-reports. (There are no blood tests, no x-rays, no lab results, and no objective data.) Individuals who verbally report experiencing significant distress due to perceived discordance between gender identity and sex cannot currently be reliably, validly, and objectively assessed as experiencing "gender dysphoria." (See American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th edn, (2013).) Although gender perceptions, feelings, and "identity" usually align with biological sex, some individuals report experiencing discordance in these distinct traits. Specifically, for example, biologic females may report experiencing that they identify as males and biologic males may report experiencing that they identify as females. As gender by definition is distinct from biological sex, one's gender identity does not change a person's biological sex. There is currently no known reliable and valid methodology for assessing the accuracy or nature of unverified, verbal reports of discordant "identity." There is thus no known "error rate" for relying upon such reports to engage in hormonal and surgical treatments that might result in lasting, irreversible damages to normal, healthy organs and the destruction of normal biological functions (e.g. sterility), as the current research documents. In my opinion, this

view is generally accepted by the relevant scientific communities in endocrinology, urology, surgery, neonatology, gynecology, psychiatry, biology, genetics, and other fields.

34. METHODOLOGICAL DEFECTS of the GENDER TRANSITION INDUSTRY include the KNOWN LIMITATIONS OF RELYING ON UNVERIFIED, PATIENT SELF-REPORT DATA UNRELIABLY ASSESSED BY HEALTH CARE PROFESSIONALS. The relevant science documents that mental health care professionals are unreliable human "lie detectors" ("often no better than flipping a coin"). Currently, there is no known methodology for reliably discerning true from false patient reports without corroborating evidence such as radiology, lab tests, or other objective evidence. The gender transition industry's sole reliance upon patient self-report data carries unknown risks of errors, misinformation, deception and lasting harm to patients from treatments that deliberately damage healthy organs and destroy essential normal bodily processes (e.g. often causing sterility). Assessment of gender dysphoria currently depends almost entirely upon unverified, self-reported evidence provided by patients. A patient's spoken or written reports of alleged "memories" of symptoms and behaviors are the only source of evidence for the diagnosis in many cases. This is a source of potentially profound unreliability in patient care as the relevant science documents that physicians are poor "lie detectors"—often no more reliable in discerning false reports than flipping a coin—and sometimes much worse. The relevant research also documents that even though humans (including therapists) are poor "lie detectors," many poorly trained physicians and mental health professionals personally—and falsely—believe they are "experts" at this complex and difficult task. See, e.g., Vrij, Aldert, Granhag, P. and Porter, S. (2010) Pitfalls and opportunities in nonverbal and verbal lie detection. Psychological Science In The Public Interest, 11 (3). pp. 89-121. ISSN 1529-1006 10.1177/1529100610390861. The final error that I will highlight is that professional lie catchers

tend to overestimate their ability to detect deceit. Research has consistently shown that when professional lie catchers and laypersons are compared, "professionals are more confident in their veracity judgments but are NO more accurate" (emphasis added). See also Rosen, G. M. and Phillips, W.R., A Cautionary Lesson from Simulated Patients, *Journal of the American Academy of Psychiatry and Law*, 32, 132-133, (2004).

35. METHODOLOGICAL DEFECTS of the GENDER TRANSITION INDUSTRY include the reliance upon (often poorly trained) mental health professionals to assess unverified patient reports. Although much of medicine became science-based in the 20th century, the mental health field reportedly continues to lag behind.

The gender transition industry often involves social workers or other mental health professionals "assessing" patients reporting gender dysphoria to determine if they will "benefit" from "affirmation" medical interventions. Given the extraordinary lack of competent, methodologically sound research justifying the use of gender affirmation "treatments" (as demonstrated in independent reviews by England, Sweden, Finland, the Cochrane review, and others, see below), there is no method for mental health professionals to reliably determine who might "benefit" from experimental interventions. Such unreliable assessment protocols risk harm to patients as they depend upon the widespread, unreliable method of having psychotherapists depend upon "clinical judgment" methodologies to make life-changing decisions and offer "professional" opinions with little or no scientific validity. See, e.g., Mischel, W. Connecting Clinical Practice to Scientific Progress, Psychological Science in the Public Interest, November 2008, vol 9, no 2 i-ii. The past President of the Association for Psychological Science, Prof. Walter Mischel,

stated "the current disconnect between psychological science and clinical practice is an unconscionable embarrassment." See Mischel, W. Connecting Clinical Practice to Scientific Progress, Psychological Science in the Public Interest, Vol 9, No 2, 2009.

Over the past century many components of the health care system—surgery, radiology, laboratory testing, internal medicine, pharmacological systems, etc.—became science-driven and far more effective and reliable. Courts are often unaware that this transformation—moving from widespread use of unreliable methodologies to the widespread use of reliable science-based methodologies—has, in many ways, not yet occurred in the mental health system. See, e.g., West, Catherine, 'An Unconscionable Embarrassment,' Association for Psychological Science, Observer, October 2009, see http://www.psychologicalscience.org/index.php/publications/observer/2009/october-09/an-unconscionable-embarrassment.html; See, also Baker, T., McFall, R. & Shoham, V., Current Status and Future Prospects of Clinical Psychology: Toward a Scientifically Principled Approach to Mental and Behavioral Health Care, Psychological Science in the Public Interest, Vol. 9, No. 2 (2009); see also Harrington, A., Mind Fixers: Psychiatry's Troubled Search for the Biology of Mental Illness, W. W. Norton & Company; 1st edition, April 16, 2019; see also Dawes, R.M., House of cards: Psychology and psychotherapy built on myth, New York: Free Press (1997); see also Garb, H. N., & Boyle, P. A (2003). Understanding why some (mental health) clinicians use pseudoscientific methods: Findings from research on clinical judgment. In S. O. Lilienfeld, S. J. Lynn, &. J. M. Lohr (Eds.), Science and pseudo-science in clinical psychology (pp. 17–38). New. York, NY: Guilford Press.

36. DYSPHORIC REPORTS ARE COMMON FROM CHILDREN WITH A RANGE OF ILLNESSES: Reports of feelings of anxiety, depression, isolation, frustration, and embarrassment are not unique to children with gender dysphoria, but rather are common to children

who differ physically or psychologically from their peers. Difficulties are accentuated as children progress through the normal stages of neuro-cognitive and social development. In my clinical practice of pediatric endocrinology, this is most commonly seen in children with diabetes. Attempts to deny or conceal the presence of disease rather than openly acknowledge and address specific needs can have devastating consequences including death. With proper acknowledgment of the similarity and differences between children with gender dysphoria and other developmental challenges, prior medical experience in treating a range of reported troubles can guide the development of effective approaches to both alleviate suffering and minimize harm to school aged and adolescent children experiencing gender dysphoria.

37. COURTS SHOULD BE AWARE THAT CLINICAL EXPERIENCE IN THE MENTAL HEALTH FIELDS—WHERE CLINICIANS OFTEN LACK ACCURATE FEEDBACK—IS OFTEN OF LIMITED VALUE: As the gender transition industry routinely permits poorly qualified social workers or other mental health professionals to subjectively make life changing decisions in gender dysphoria cases—such mental health professionals often unreliably overestimate their ability to offer such "crystal ball" assessments and predictions. Few of these professionals seem aware of the research showing the grave limitations on the experience, judgment, and methodologies of mental health professionals. See, e.g., Tracey, T.J., Wampold, B.E., Lichtenberg, J.W., Goodyear, R. K., (2014) Expertise in Psychotherapy: An Elusive Goal, American Psychologist, Vol. 69, No. 3, 218-229. "In a review of expertise across professions, Shanteau, J. (1992). [Competence in experts: The role of task characteristics. *Organizational Behavior and Human Decision Processes, 53*(2), 252–266.] identified several professions in which practitioners develop expertise, which he defined as increased quality of performance that is gained with additional experience. These professions, which demonstrate there can be a relation

between experience and skill, include astronomers, test pilots, chess masters, mathematicians, accountants, and insurance analysts. Shanteau also identified several professions for which experiential expertise was not demonstrated, including [mental health professionals]. He attributed the differences between the two types of professions to the *predictability of their outcomes and the unavailability of quality feedback*." For example, airline pilots, or even more clearly Navy fighter pilots who land on aircraft carriers practice their professions in full view of hundreds of people. If they err, people die. If they are, off course, unstable, or inaccurate in their performance, immediate consequences, retraining or loss of profession is the immediate outcome. In contrast, a social worker, psychologist, or psychiatrist, sitting alone in a room with a troubled patient can make erroneous statements, use unreliable methodologies (e.g., naively believing whatever patients tell them or believing that they are "professional human lie detectors"), believe false and misleading notions about human memory, demonstrate ignorance of the serious defects in transgender treatment research, and fail to properly inform patients of the risks and benefits of treatments, etc. Mental health professionals can make such egregious errors for decades without receiving timely, accurate feedback. Without accurate feedback there is a failure of the learning process and improvements are difficult or not possible. Such limiting processes can continue for many years of practice. This is why mental health professions have been listed as doing the type of work that often does not lead to improvements in "clinical experience"—even over many years of practice. Gender discordant ("transgender") patients are rarely, if ever, informed of these limitations on mental health professionals' knowledge, training, or experience nor the limitations of mental health "assessments" based on unverified self-reported "memory" data.

38. The World Professional Association for Transgender Health (WPATH), the American Academy of Pediatrics (AAP), and the Endocrine Society: This methodological critique and

history of association errors and misadventures is quite informative when assessing the "professional association" consensus seeking methodologies including voting and political activities such as those of WPATH, the AAP, the American Endocrine Society and similar groups as they adopt support for the "politically correct" but scientifically defective, ideologically driven gender transition industry. Consensus seeking (voting) methods are not scientific evidence-based methodologies. Courts should take care not to be deceived by the "positions" of Associations—no matter how large or vocal. The net effect of many the gender transition industry's methods and procedures is the sterilization of tens of thousands of children, adolescents, and adults. This is a sobering reminder of previous, now infamous, medical misadventures. (See Hruz, PW, Mayer, LS, and McHugh, PR, "Growing Pains: Problems with Puberty Suppression in Treating Gender Dysphoria," The New Atlantis, Number 52, Spring 2017 pp. 3 -36; See also McHugh, P., Psychiatric Misadventures, The American Scholar, Vol. 62, No. 2 (Spring 1993), pp. 316-320).

39. The Diagnostic and Statistical Manual of the American Psychiatric Association (DSM): A final example of the methodological limitations of relying upon "association voting" methods is the Diagnostic and Statistical Manual of the American Psychiatric Association. The DSM (and also the International Classification of Diseases- ICD) system(s) have confused some courts in the past. Simply put, reliability data, validity methodological analyses, and error rates are not supplied nor supported by the Diagnostic and Statistical Manual of the American Psychiatric Association (DSM).

The current American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* (Version 5) employs the term "Gender Dysphoria" and defines it with separate sets of criteria for adolescents and adults on the one hand, and children on the other. It is important to appreciate the DSM for what it is and what it is not. The DSM began as an attempt to create a

dictionary for psychiatry. The process by which DSM classifications are created involves voting by committee—this is not a reliable-valid scientific process. The committees' recommendations are approved or rejected by superordinate committees. DSM content is largely decided by consensus-seeking methodologies—such as "voting" by small committees of (sometimes) advocates and activist practitioners whose judgment may suffer from significant financial conflicts of interest. The limitations of the DSM methodology are well known in the relevant scientific community. In my opinion, these views are generally accepted by the relevant scientific community.

In sum, professional association "positions" are not based upon competent, credible, reliable and valid scientific methodologies. Professional association "positions" on gender affirmation assessments and treatments remain very socially, medically, and scientifically controversial—and increasingly so. The association "positions"—since they are produced by voting and not methodologically reliable-valid evidence—have not been generally accepted by the relevant scientific community and they have no known, nor published, error rates.

40. PATIENTS' RIGHTS TO TESTED, PROVEN TREATMENTS and INFORMED CONSENT HAVE BEEN VIOLATED IN THE PAST BY ETHICAL FAILURES IN THE MEDICAL and MENTAL HEALTH SYSTEMS. Using experimental procedures on uninformed, vulnerable patients is unethical and improper. Some of the most tragic chapters in the history of medicine include violations of informed consent and improper experimentation on patients using methods and procedures that have not been tested and validated by methodologically sound science—such is the case with the gender transition industry. The history of the infamous Tuskegee studies, the Nazi and Imperial Japanese wartime experiments, lobotomies (e.g., Dr. Egas Moniz received the 1949 Nobel Prize in Medicine for inventing lobotomies as a "treatment" for schizophrenia. See https://www.nobelprize.org/prizes/medicine/1949/moniz/article/),

recovered memory therapy-multiple personality disorders, rebirthing therapy (see, e.g., Janofsky, M. Girl's Death Brings Ban on Kind of 'Therapy'. New York Times. April 18, 2001; see also Peggy Lowe, Rebirthing team convicted: Two therapists face mandatory terms of 16 to 48 years in jail, Rocky Mountain News, April 21, 2001), coercive holding therapy (see, Hyde, J. "Holding therapy appears finished, State orders the last practitioner of holding therapy to end controversial method" Deseret News, Feb 13, 2005), and other tragic examples should serve as a stark warning to medical providers to properly protect the rights of patients and their families to a proper informed consent process and to not be subjected to experimental, unproven interventions such as gender transition "treatments." It is now universally agreed that medical and psychotherapy patients have a right to proper informed consent. Professional ethics codes, licensing rules and regulations, hospital rules and regulations, state and federal laws, and biomedical conventions and declarations all protect patients' right to informed consent discussions of the risks and benefits of proposed treatments and alternative treatments including no treatment. See Jonson AR, Siegler M, Winslade, WJ: Clinical Ethics, New York: McGraw Hill, 1998, ("Informed consent is defined as the willing acceptance of a medical intervention by a patient after adequate disclosure by the physician of the nature of the intervention, its risks, and benefits, as well as of alternatives with their risks and benefits.") See also Katz, A., Webb, S., and Committee on Bioethics, Informed Consent in Decision-Making in Pediatric Practice, Pediatrics, August 2016, 138 (2) e20161485; DOI: https://doi.org/10.1542/peds.2016-1485 at https://pediatrics.aappublications.org/content/138/2/e20161485

Tragically, however, as I will discuss in detail below, we now have much evidence supporting increasing concerns that the true risks and benefits of Sex Discordant Gender

("transgender") transition "treatments" are NOT being properly and ethically presented to patients by providers (surgeons, endocrinologists, therapists, etc). Similarly, many of the published "pro-transition" research studies reviewed in this declaration have misrepresented to the public the actual risks and benefits of gender affirming medical interventions. The gender transition industry has produced research claiming evidence supporting the use of controversial "treatments" when, in fact, their own study data more likely support the alternative hypothesis that so-called "transition" intervention procedures might produce higher risks of anxiety and more serious suicide attempts requiring hospitalization**.** Expert witnesses in cases involving issues related to sex discordant gender transition interventions are duty bound and required by licensing rules to truthfully and fully disclose to courts and legal professionals the well-documented risks, international controversies, and published misrepresentations involving the still unproven gender transition methods and procedures.

42. ONE OF THE MOST SERIOUS OF ALL METHODOLOGICAL ERRORS, CONFIRMATION BIAS, PLAGUES THE RESEARCH OF THE GENDER TRANSITION INDUSTRY: Confirmation bias is one of the most serious and potentially dangerous errors in the assessment-diagnosis-treatment process of medicine. One of the key methodologies in science and in proper investigations-assessments of all kinds—including expert witness review and testimony—is the generation and testing of multiple alternative investigative hypotheses. From US Public Junior High Schools (typically first taught to 8th Graders) through competent M.A., M.S.W., and all Ph.D. and M.D. graduate programs, students and professionals at all levels are taught that the central methodology for science and for a proper assessment-diagnosis-treatment or expert witness report involves the generation and testing of alternative investigative hypotheses. Investigative hypotheses, once generated, should be rationally, properly, and fairly explored

to see if actual, factual evidence supports or refutes the hypotheses. A common and serious error in improper assessments-diagnoses-treatments is "confirmation bias," the failure to generate and then explore alternative hypotheses. With confirmation bias, the often poorly trained and/or biased physician, investigator, expert, or therapist applies a narrow "tunnel vision" process to support a single, favorite, biased, pre-conceived hypothesis in a case. (See Garb, H. N., & Boyle, P. A (2003). Understanding why some clinicians use pseudoscientific methods: Findings from research on clinical judgment. In S. O. Lilienfeld, S. J. Lynn, &. J. M. Lohr (Eds.), Science and pseudoscience in clinical psychology (pp. 17–38). New. York, NY: Guilford Press.; see also Plous, Scott (1993). The Psychology of Judgment and Decision Making. p. 233; Nickerson, Raymond S. (June 1998). "Confirmation Bias: A Ubiquitous Phenomenon in Many Guises". Review of General Psychology 2 (2): 175–220. doi:10.1037/1089-2680.2.2.17; Joshua Klayman and Young-Won Ha, Confirmation, Disconfirmation, and Information in Hypothesis Testing, Psychological Review, 1987, Vol.94, No. 2, 211-228.) Currently, too many gender transition industry providers appear to violate the requirement to properly generate, explore, and disclose alternative hypotheses for assessments/diagnoses and treatments. In my opinion such failures, including the demand that all alternative hypotheses and treatments be banned as forms of "conversion" therapy, risk institutionalizing confirmation bias —a dangerous form of negligent practice. See Smith, T. Summary of AMA Journal of Ethics article on cognitive biases, Four widespread cognitive biases and how doctors can overcome them (e.g., confirmation bias, anchoring bias, affect heuristic, and outcomes bias) at https://www.ama-assn.org/delivering-care/ethics/4-widespread-cognitive-biases-and-how-doctors-can-overcome-them. ("Physicians are human and, therefore, constantly vulnerable to cognitive bias. But this imperfection is not just theoretical. It can have huge effects on patient care.")

43. CONFIRMATION BIAS CAN PREVENT COMPLEX, COMPREHENSIVE DIAGNOSIS AND TREATMENT EXPLORING ALTERNATIVE HYPOTHESES: By demanding the immediate and un-investigated "affirmation" of a sex discordant gender identity patient's requests for so-called "transitioning"—without conducting a detailed, proper, medical assessment of alternative hypotheses—the gender transition industry is attempting to enforce and institutionalize the methodological failure of "confirmation bias." By disparaging as "conversion therapy" all forms of psychotherapy, coping-and-resilience training, cognitive behavioral therapy for depression/anxiety, the gender transition industry is failing to treat individual patients according to the basic requirements and principles of competent medical assessment, diagnosis, and treatment. The current scientific evidence does not support the current treatments nor methods endorsed and aggressively marketed and demanded by the gender transition industry. Its general refusal to properly investigate or even consider alternative hypotheses, alternative diagnoses, and alternative treatments is, in my view, unethical misconduct. For example, many peer reviewed, properly conducted, published research reports demonstrate that cognitive-behavioral therapy is a very low-risk, safe, and highly effective treatment for depression and anxiety disorders. See, e.g., Mor N, Haran D. Cognitive-behavioral therapy for depression. J Psychiatry Relat Sci. 2009;46(4):269-73. PMID: 20635774, https://pubmed.ncbi.nlm.nih.gov/20635774/; (A review of "Twenty-nine Random Control Trials were included in three separate meta-analyses. Results showed multi-modal CBT was more effective than no primary care treatment (d =0.59), and primary care treatment-as-usual (TAU) (d = 0.48) for anxiety and depression symptoms."). See, e.g., Twomey, C., O'Reilly, G. and Byrne, M. Effectiveness of cognitive behavioural therapy for anxiety and depression in primary care: a meta-analysis, Family Practice, Volume 32, Issue 1, February 2015, pp. 3–15, https://doi.org/10.1093/fampra/cmu060. The political taint is so strong

that some providers reportedly fail to offer and engage in CBT therapy with depressed/anxious gender dysphoric patients for fear of being attacked as engaging in "conversion" therapy. Again, the institutionalization of medical negligence (e.g., confirmation bias) harms vulnerable patients.

44. PROPER INVESTIGATIONS OF DECEPTIVE MISCONDUCT. Ideological over-reach can lead to unethical misconduct and licensing violations. Misrepresenting medical-scientific research, deceptively hiding methodological errors, or failing to honestly report ongoing international controversies to courts, patients, or guardians should be properly investigated as misconduct. Licensing boards and professional associations produce and should properly enforce ethics rules and requirements governing the conduct of health care professionals to protect the rights of patients and parents.

45. THE ACTUAL PREVALENCE OF GENDER DYSPHORIA and PATIENTS THAT IDENTIFY AS GENDER DISCORDANT ("transgender") IS UNKNOWN BUT IT APPEARS TO BE INCREASING AT A RAPIDLY ACCELERATING RATE THUS SUPPORTING AN ALTERNATIVE HYPOTHESIS OF SOCIAL CONTAGION: Estimates reported in in the DSM-V were between 0.005% to 0.014% for adult males and 0.002% to 0.003% for adult females. Thus, gender dysphoria was, until just a few years ago, a very rare condition. It is currently unknown whether these DSM estimates were falsely low due to under-reporting or:

- whether changing societal acceptance of transgendered identity and the growing number of medical centers providing interventions for gender dysphoria has led to increased reporting of persons who identify as transgender ;
- whether the reported educational programs aggressively promoting "non-binary" identification to elementary to high school students to college students have greatly increased the numbers of youth adopting a transgender identity;

- whether the reported wave of "trans You Tube influencers" watched by millions each day as they aggressively "sell" the transgender lifestyle has added to a social contagion effect with vulnerable lonely, depression, anxious, or autistic youth; or
- whether other causal processes are at play.

A key unanswered research question is whether a social contagion process is leading to vast and rapid increases in the numbers of patients identifying as gender discordant ("transgender"). How many of the new waves of thousands of cases are 'false reports' that will dissipate with time and normal development over time? For example, the Gender Identity Development Service in the United Kingdom, which treats only children under the age of 18, reported that it received 94 referrals of children in 2009/2010 and 1,986 referrals of children in 2016/2017, a relative increase of 2,000%. See "GIDS referrals figures for 2016/17," Gender Identity Development Service, GIDS. NHS.uk (undated), http://gids.nhs.uk/sites/default/files/content_uploads/referralfigures-2016-17.pdf.

Reportedly, similar social contagion processes led to tens of thousands of patients and families being harmed by controversial diagnoses such as multiple personality disorder (MPD) and controversial interventions including recovered memory therapy (RMT). RMT and MPD patients, once considered extremely rare (some 300 MPD patients reported worldwide prior to the 1980s-1990s social contagion epidemic) erupted into a flood of tens of thousands of patients and affected families in the 1990s. These very controversial disorders and treatments were greatly reduced by dozens of civil lawsuits against RMT-MPD therapists, international news exposure of scientific evidence debunking these notions, and international news reporting of the civil litigation, licensing prosecutions, and licensing revocations of well-known RMT-

MPD practitioners. (See, e.g., Belluck, P. Memory Therapy Leads to a Lawsuit and Big Settlement [$10.6 Million], The New York Times, Page 1, Column 1, Nov. 6, 1997; Pendergrast, M. (2017). The repressed memory epidemic: How it happened and what we need to learn from it. New York, NY: Springer).

Recent data indicates that the number of people seeking care for gender dysphoria is rapidly increasing with some estimates as high as 20-fold and more. See Chen, M., Fuqua, J. & Eugster, E. A. Characteristics of Referrals for Gender Dysphoria Over a 13-Year Period. Journal of Adolescent Health 58, 369-371, doi:https://doi.org/10.1016/j.jadohealth.2015.11.010 (2016); 4. "GIDS referrals figures for 2016/17," Gender Identity Development Service, GIDS.NHS.uk (undated), http://gids.nhs.uk/sites/default/files/content_uploads/referral-figures-2016-17.pdf). See Zucker K. J. (2017). Epidemiology of gender dysphoria and transgender identity. *Sexual health*, *14*(5), 404–411. https://doi.org/10.1071/SH17067. Data from England show *increases of 4,000%* for female to male patients and in America data show *increases of 20,000%* for young women (e.g. from .01 to 2%). Estimates vary considerably in relation to how sex-gender identity discordance is defined. See Zhang, Q., Goodman, M., Adams, N., Corneil, T., Hashemi, L., Kreukels, B., Motmans, J., Snyder, R., & Coleman, E. (2020). Epidemiological considerations in transgender health: A systematic review with focus on higher quality data. *International journal of transgender health*, *21*(2), 125–137. https://doi.org/10.1080; Poteat, T., Rachlin, K., Lare, S., Janssen, A. & Devor, A. in *Transgender Medicine: A Multidisciplinary Approach* (eds Leonid Poretsky & Wylie C. Hembree) 1-24 (Springer International Publishing, 2019); Flores AR, Herman JL, Gates, GJ, Brown TNT. How Many Adults Identify as Transgender in the United States? Los Angeles, CA: The Williams Institute; 2016. https://williamsinstitute.law.ucla.edu/wp-content/uploads/Trans-Adults-US-Aug-2016.pdf. Accessed April 28, 2021.

46. EVIDENCE SUPPORTS THE HYPOTHESIS THAT GENDER IDENTITY IS *NOT* GENETICALLY OR BIOLOGICALLY DETERMINED: There is strong disconfirming evidence (e.g., Popperian falsifiability) against the theory that gender identity is determined at or before birth and is unchangeable. This comes from A) identical twin studies where siblings share genetic complements and prenatal environmental exposure but have differing gender identities. See Heylens, G. et al. Gender identity disorder in twins: a review of the case report literature. J Sex Med 9, 751-757, doi:10.1111/j.1743-6109.2011.02567.x (2012) and B) the very recent and massive increase in the numbers of GD patients over a very short time span. This argues against a biological-genetic hypothesis. See Leinung MC, Joseph J. Changing Demographics in Transgender Individuals Seeking Hormonal Therapy: Are Trans Women More Common Than Trans Men? Transgend Health. 2020 Dec 11;5(4):241-245. doi: 10.1089/trgh.2019.0070. PMID: 33644314; PMCID: PMC7906237.

47. REPLICATED RESEARCH EVIDENCE SUPPORTS THE HYPOTHESIS THAT GENDER IDENTITY IS *NOT* IMMUTABLE: Further evidence that gender identity is not fixed and immutable comes from established peer reviewed literature demonstrating that the vast majority (80-95%) of children who express gender dysphoria revert to a gender identity concordant with their biological sex by late adolescence. This natural developmental "cure" of gender dysphoria requires no direct "treatment" and prevents the hormonal and surgical destruction of normal, healthy organs and bodily processes (e.g. prevents sterilization of the child). See Singh D, Bradley SJ, Zucker KJ. A Follow-Up Study of Boys With Gender Identity Disorder. Front Psychiatry. 2021 Mar 29;12:632784. doi: 10.3389/fpsyt.2021.632784. PMID: 33854450; PMCID: PMC8039393. It is not currently known whether individuals with gender dysphoria persistence have differing etiologies or severity of precipitating factors compared to desisting individuals.

See Drummond, K. D., Bradley, S. J., Peterson-Badali, M. & Zucker, K. J. A follow-up study of girls with gender identity disorder. Dev Psychol **44**, 34-45, doi:10.1037/0012-1649.44.1.34 (2008); Steensma, T. D., McGuire, J. K., Kreukels, B. P., Beekman, A. J. & Cohen-Kettenis, P. T. Factors associated with desistence and persistence of childhood gender dysphoria: a quantitative follow-up study. J Am Acad Child Adolesc Psychiatry **52**, 582-590, doi:10.1016/j.jaac.2013.03.016 (2013).

48. VIRTUALLY ALL TRANSGENDER PATIENTS ARE BORN WITH HEALTHY NORMAL SEX ORGANS AND NO KNOWN BRAIN OR GENETIC ABNORMALITIES: Most people with gender dysphoria, do not have a disorder of sexual development. As documented in their medical record, such patients typically have normally formed sexual organs. The presence of normal, functional sex organs prior to the initiation of hormone administration or surgical "transition" operations is typical in transgender patients. I note that both hormonal treatments and surgery to remove healthy, normal organs (the genitals of GD patients) destroy the function of healthy organs (e.g., producing the life-long sterilization of GD patients). Such injurious "treatments" are very controversial and occur nowhere else in medicine that I am aware of with the exception of requests for the amputation of healthy limbs in patients suffering from the very controversial "body integrity identity disorder". See Elliott, T., Body Dysmorphic Disorder, Radical Surgery and the Limits of Consent**,** *Medical Law Review*, Volume 17, Issue 2, Summer 2009, Pages 149–182, https://doi.org/10.1093/medlaw/fwp001. In 2000 there was a media furor when it was disclosed that a Scottish surgeon had operated upon two adult male patients reportedly suffering from a rare form of a psychological condition known as body integrity identity disorder, in each case amputating a healthy leg. Since then, the question of whether such surgery is ethically or legally permissible has been a matter of debate. The subject raises issues

as to the extent to which it is proper to treat adults with psychiatric or psychological disorders with radical surgery, particularly where the appropriate diagnosis and treatment of the underlying disorder is uncertain or disputed. Similarly, gender transition interventions also involve treating patients "with psychiatric or psychological disorders with radical surgery, where the appropriate diagnosis and treatment of the underlying disorder is uncertain or disputed."

The primary use of psychotherapy as a means to treat body dysmorphic disorder contrasts with the approaches used by the gender transition industry. See Hadley, S. J., Greenberg, J., & Hollander, E. (2002). Diagnosis and treatment of body dysmorphic disorder in adolescents. *Current psychiatry reports*, *4*(2), 108–113. https://doi.org/10.1007/s11920-002-0043-4; Allen, A., & Hollander, E. (2000). Body dysmorphic disorder. *The Psychiatric clinics of North America*, *23*(3), 617–628. https://doi.org/10.1016/s0193-953x(05)70184-2.

49. THE ETIOLOGY (CAUSE) OF GENDER DYSPHORIA IS CURRENTLY UNKNOWN and the "TREATMENTS" are of UNCERTAIN EFFICACY. The current theories and treatments remain experimental and controversial. The etiology of gender dysphoria in individuals with sex-gender identity discordance remains unknown. Alternative hypotheses include some as yet unidentified biological cause, prenatal hormone exposure, genetic variation, postnatal environmental influences, family dynamics, other forms of mental illness, an abnormal detour from developmental identity processes, social contagion effects on suggestible-vulnerable subjects, or a combination of multiple factors. Based upon the available evidence, it is most likely that sex-gender identity discordance is multifactorial with both genetic and environmental influences, differing in both kind and degree in any affected individual. Importantly, these potential contributing factors are hypothesized to be contributory, but not determinative of the condition.

See Saleem, Fatima, and Syed W. Rizvi. "Transgender Associations and Possible Etiology: A Literature Review." Cureus 9, no. 12 (2017): e1984.

50. THE CONCEPT OF "NEUROLOGICAL SEX" IS EXPERIMENTAL, UNVERIFIED, HAS NO KNOWN ERROR RATE and is NOT ACCEPTED BY THE RELEVANT SCIENTIFIC COMMUNITY. The recently coined concept of "neurological sex" as a distinct entity or a basis for classifying individuals as male or female has no scientific justification. Limited emerging data has suggested structural and functional differences between brains from normal and transgender individuals. These data do not establish whether these differences are innate and fixed or acquired and malleable. The remarkable neuronal plasticity of the brain is well known, well documented, and has been studied extensively in gender-independent contexts related to health and disease, learning, and behavior. See Fatima Yousif Ismail, Ali Fatemi, and Michael V. Johnston, "Cerebral Plasticity: Windows of Opportunity in the Developing Brain," European Journal of Paediatric Neurology 21, no. 1 (2017).

51. GENDER IDENTITY IDEOLOGY IS A POLITICAL, NOT SCIENTIFIC THEORY. A key alternative investigative hypothesis in efforts to understand the rise of reports of gender discordance and social-political-medical attempts to create a transgender movement is that such ideas are not based upon sound scientific biological, genetic, or related principles and data but rather are based upon ideology and driven by political advocacy. Although worldviews among scientists and physicians differ widely (similar to society at large), science must remain firmly grounded in testable, valid, and reliable assessments of physical reality—not ideologically tainted perceptions and belief systems. The inherent link between human sexual biology and teleology (e.g. human reproduction) is self-evident and fixed. Breithaupt H. The science of sex.

EMBO Rep. 2012;13(5):394. Published 2012 May 1. doi:10.1038/embor.2012.45. Activists often support clearly contradictory theories and arguments at the same time (e.g. the claim that Gender Dysphoria (GD) and "trans identity" are" immutable", "genetic", or based on "brain structures" while simultaneously claiming GD is also "fluid" and thus capable of changing on a daily basis). That is perhaps because the gender transition industry gains support from controversial ideological foundations. (See, e.g., Pluckrose, and Lindsay, J., Cynical Theories: How Activist Scholarship Made Everything about Race, Gender, and Identity—and Why This Harms Everybody, Pitchstone Publishing, August 25, 2020).

52. GENDER IDENTITY IDEOLOGY HAS NO SCIENTIFIC BASIS, HAS NEVER BEEN ACCEPTED BY THE RELEVANT SCIENTIFIC COMMUNITY, and HAS NO KNOWN NOR PUBLISHED ERROR RATE. The political-ideological claims of proponents of transgenderism, which include opinions such as "gender identity is the primary factor determining a person's sex," "gender is the only true determinant of sex," and individuals have "sex assigned at birth" must be viewed in their proper ideological context. There is no scientific basis for redefining sex on the basis of a person's subjective, psychological sense of "gender".

53. IN CONTRAST TO "TRANSGENDER" IDEOLOGY, THE BIOLOGICAL BASIS OF SEX IS FIRMLY GROUNDED IN SCIENCE, ACCEPTED BY THE RELEVANT SCIENTIFIC COMMUNITY, AND HAS A VERY LOW ERROR RATE: The prevailing, constant, tested, proven, and accurate designation of sex as a biological trait grounded in the inherent purpose of male and female anatomy and as manifested in the appearance of external genitalia at birth remains the proper scientific and medical standard. Redefinition of the classification and meaning of sex based upon pathologic variation is not established medical fact. See, e.g.,

Mittwoch, U. (2013), Sex determination. EMBO reports, 14: 588-592. https://doi.org/10.1038/embor.2013.84

54. THE ETHICAL FOUNDATIONS of MEDICINE—FIRST DO NO HARM: The fundamental purpose of the practice of medicine is to treat disease and alleviate suffering. An essential tenet of medical practice is to avoid doing harm in the process. Efforts to rely upon clear, valid, reliable, and definitive evidence on how to best accomplish treatment goals is the essential ethical, professional, scientific, and clinical goals of physicians. The gender transition industry violates this essential principle by using experimental treatments on vulnerable populations without properly informing them of the actual risks and limitations of the treatments. See Jonson AR, Siegler M, Winslade, WJ: Clinical Ethics, New York: McGraw Hill, 1998.

55. THE ETHICAL FOUNDATIONS of MEDICINE REQUIRE US TO STRIVE TO HELP THOSE IN DISTRESS WITH COMPASSION, KINDNESS, and EMPATHY WITHOUT VIOLATING PATIENTS' and PARENTS' RIGHTS BY ENGAGING IN EXPERIMENTAL, UNPROVEN INTERVENTIONS LEADING TO PERMANENT DAMAGE TO MANY PATIENTS—INCLUDING STERILIZATION: Persons with gender dysphoria as defined in the DSM-V report experiencing significant psychological distress related to their condition with elevated risk of depression, suicide, and other morbidities. Thus, attempts to provide effective medical care to affected persons are clearly warranted. Efforts to effectively treat persons with gender dysphoria require respect for the inherent dignity of those affected, sensitivity to their suffering, and maintenance of objectivity in assessing etiologies and long-term outcomes. In my opinion, the use of unproven, experimental treatments on vulnerable patients and the publication of grossly methodologically defective research are violations of the ethical foundations of medicine.

56. THREE CURRENT APPROACHES FOR MANAGING GENDER DYSPHORIA: To date, three approaches have been proposed for treating children with gender dysphoria. See Zucker, K. J. On the "natural history" of gender identity disorder in children. J Am Acad Child Adolesc Psychiatry 47, 1361-1363, doi:10.1097/CHI.0b013e31818960cf (2008).) The first approach, often referred to as "conversion" or "reparative therapy," is directed toward actively supporting and encouraging children to identify with their biological sex. The second "neutral" or "watchful waiting" approach, motivated by understanding of the natural history of transgender identification in children, is to neither encourage nor discourage transgender identification, recognizing that the vast majority of affected children if left alone are likely to eventually realign their reports of gender identification with their sex. This approach may also include the use of scientifically validated treatments (e.g. CBT) for the patient's anxiety, depression, social skills deficits or other issues. See van Bentum, J. S., van Bronswijk, S. C., Sijbrandij, M., Lemmens, L., Peeters, F., Drukker, M., & Huibers, M. (2021). Cognitive therapy and interpersonal psychotherapy reduce suicidal ideation independent from their effect on depression. *Depression and anxiety*, 10.1002/da.23151. Advance online publication. https://doi.org/10.1002/da.23151; Gallagher, M. W., Phillips, C. A., D'Souza, J., Richardson, A., Long, L. J., Boswell, J. F., Farchione, T. J., & Barlow, D. H. (2020). Trajectories of change in well-being during cognitive behavioral therapies for anxiety disorders: Quantifying the impact and covariation with improvements in anxiety. *Psychotherapy (Chicago, Ill.)*, *57*(3), 379–390. https://doi.org/10.1037/pst0000283. The third, "affirming," approach is to actively encourage children to embrace transgender identity with social transitioning followed by hormonal therapy leading to potential surgical interventions and life-long sterilization. See Walch A, Davidge-Pitts C, Safer JD, Lopez X, TangprichaV, Iwamoto SJ. Proper Care of Transgender and Gender Diverse Persons in the Setting of Proposed

Discrimination: A Policy Perspective J Clin Endocrinol Metab. 2021;106(2):305-308. doi:10.1210/clinem/dgaa816**.**

57. THE "WATCHFUL WAITING" TREATMENT MODALITY INVOLVES NO MEDICAL INTERVENTION AND IS CURRENTLY THE BEST SCIENTIFICALLY SUPPORTED INTERVENTION FOR YOUNG CHILDREN REPORTING GENDER DYSPHORIA: Desistance (i.e. realignment of expressed gender identity to be concordant with sex) provides the greatest lifelong benefit, is the outcome in the vast majority of patients, and should be maintained as a desired goal. Any scientifically untested intervention that unnecessarily interferes with the likelihood of a normal, non-traumatic, developmental resolution of gender dysphoria is unwarranted and potentially harmful. The gender affirming approach, which includes use of a child's preferred pronouns, use of sex-segregated bathrooms, other intimate facilities and sleeping accommodations corresponding to a child's gender identity, has limited, "very weak," "sparse" scientific support for short-term alleviation of dysphoria and *no long-term outcomes data demonstrating superiority over the other approaches*. (See national reviews of England, Sweden, Finland, the Cochrane review, the Griffin review, the Carmichael review and others). Claims that the other approaches have been scientifically disproven are simply false. Decades of peer-reviewed, published scientific research, including the pioneering work of Dr. Kenneth Zucker, have supported the efficacy of the "watchful waiting" approach for the majority of patients experiencing gender dysphoria. See Zucker, K. J. On the "natural history" of gender identity disorder in children. J Am Acad Child Adolesc Psychiatry 47, 1361-1363, doi:10.1097/CHI.0b013e31818960cf (2008); Bradley, S. J. & Zucker, K. J. Gender Identity Disorder: A Review of the Past 10 YearsG. Journal of the American Academy of Child & Adolescent Psychiatry 36, 872-880, doi:10.1097/00004583-199707000-00008.). In sum, the treatment

protocols and recommendations of politically influenced, non-science associations (WPATH, Pediatrics Assn, APA) who engaged in "voting", consensus-seeking methodologies (not science) are not accepted by the relevant *scientific* community, are not based upon competent-credible, methodologically sound science, and have no known, nor published, error rate.

58. THE HARMFUL EFFECTS OF "AFFIRMATIVE" TREATMENTS—INCLUDING PUBERTAL SUPPRESSION—ARE ESTABLISHED and ACCEPTED BY THE RELEVANT SCIENTIFIC COMMUNITY: "To sum up how puberty suppression works, a thought experiment might be helpful. Imagine two pairs of biologically and psychologically normal identical twins—a pair of boys and a pair of girls—where one child from each pair undergoes puberty suppression and the other twin does not. Doctors begin administering GnRH analogue treatments for the girl at, say, age 8, and for the boy at age 9. Stopping the gonadal hormone pathway of puberty does not stop time, so the puberty- suppressed twins will continue to age and grow—and because adrenal hormones associated with puberty will not be affected, the twins receiving GnRH analogue will even undergo some of the changes associated with puberty, such as the growth of pubic hair. However, there will be major, obvious differences within each set of twins. *The hormone suppressed twins' reproductive organs will not mature*: the testicles and penis of the boy undergoing puberty suppression will not mature, and the girl undergoing puberty suppression will not menstruate. The boy undergoing puberty suppression will have less muscle mass and narrower shoulders than his twin, while the breasts of the girl undergoing puberty suppression will not develop. The boy and girl undergoing puberty suppression will not have the same adolescent growth spurts as their twins. *So all told, by the time the untreated twins reach maturity, look like adults, and are biologically capable of having children, the twins undergoing puberty suppression will be several inches shorter, will physically look more androgynous and*

childlike, and will not be biologically capable of having children. This is a thought experiment, but it illustrates some of the effects that puberty suppression would be expected to have on the development of a growing adolescent's body." See Hruz, PW, Mayer, LS, and McHugh, PR, "Growing Pains: Problems with Puberty Suppression in Treating Gender Dysphoria," The New Atlantis, Number 52, Spring 2017 pp. 3-36.

59. THE ENDOCRINE SOCIETY RECOGNIZES THAT THE QUALITY OF EVIDENCE FOR "AFFIRMATIVE" TREATMENTS IS CURRENTLY *"LOW OR VERY LOW" ("estimate of effect is very uncertain"*). There is no general acceptance of these treatments in the relevant scientific community. The error rate is unknown and could be very high. The Endocrine Society published 2009 clinical guidelines for the treatment of patients with persistent gender dysphoria. See Hembree, W. C. et al. Endocrine treatment of transsexual persons: an Endocrine Society clinical practice guideline. J Clin Endocrinol Metab 94, 3132-3154, doi:10.1210/jc.2009-0345 (2009). The recommendations include temporary suppression of pubertal development of children with GnRH agonists (hormone blockers normally used for children experiencing precocious puberty) followed by hormonal treatments to induce the development of secondary sexual traits consistent with one's gender identity. In developing these guidelines, the authors assessed the quality of evidence supporting the recommendations made with use of the GRADE (Recommendations, Assessment, Development, and Evaluation) system for rating clinical guidelines. As directly stated in the Endocrine Society publication, *"the strength of recommendations and the quality of evidence was low or very low*." According to the GRADE system, low recommendations indicate that "[f]urther research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate." Very low recommendations mean that **"**any estimate of effect is very uncertain." (See

Guyatt G H, Oxman A D, Vist G E, Kunz R, Falck-Ytter Y, Alonso-Coello P et al. GRADE: an emerging consensus on rating quality of evidence and strength of recommendations BMJ 2008; 336 :924 doi:10.1136/bmj.39489.470347.AD). An updated set of guidelines was published in September of 2017. See Hembree, W. C. et al. Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline. J Clin Endocrinol Metab, doi:10.1210/jc.2017-01658 (2017). The low quality of evidence presented in this document persists to the current day, as the controversy over these "treatments" is accelerating in recent years.

60. THE WPATH GUIDELINES (7th version) NOTE SERIOUS LIMITATIONS OF THE EXISTING SCIENTIFIC DATA: Clinical Practice Guidelines published by the World Professional Association for Transgender Health (WPATH) - (an advocacy organization whose positions are based on voting and not a scientific, evidence-based process) which is currently in its 7th iteration, similarly, though less explicitly, acknowledge the limitation of existing scientific data supporting their recommendations given and "the value of harm-reduction approaches". Coleman, E., Bockting, W., Botzer, M., Cohen-Kettenis, P., DeCuypere, G., Feldman, J., Fraser, L., Green, J., Knudson, G., Meyer, W. J., Monstrey, S., Adler, R. K., Brown, G. R., Devor, A. H., Ehrbar, R., Ettner, R., Eyler, E., Garofalo, R., Karasic, D. H., . . . Zucker, K. (2012). Standards of care for the health of transsexual, transgender, and gender-nonconforming people, version 7. International Journal of Transgenderism, 13(4), 165–232. https://doi.org/10.1080/15532739.2011.700873.

61. ADMINISTERING HORMONES TO A CHILD WHOSE GENDER DYSPHORIA IS HIGHLY LIKELY (80%+) TO RESOLVE IS RISKY, UNSCIENTIFIC and UNETHICAL. Iatrogenic damages, including life-long sterility, stunted growth, increased heart attack risk, etc.,

are often irreversible. Treatment of gender dysphoric children who experience persistence of symptoms with hormones (pubertal suppression and cross-hormone therapy) carries significant risk. It is generally accepted, even by advocates of transgender hormone therapy, that hormonal treatment impairs fertility and often result in sterility, which in many cases is irreversible. See Nahata, L., Tishelman, A. C., Caltabellotta, N. M. & Quinn, G. P. Low Fertility Preservation Utilization Among Transgender Youth. Journal of Adolescent Health 61, 40-44, doi:https://doi.org/10.1016/j.jadohealth.2016.12.012 (2017)). Emerging data also show that treated patients have lower bone density which may lead to increased fracture risk later in life. See Klink, D., Caris, M., Heijboer, A., van Trotsenburg, M. & Rotteveel, J. Bone Mass in Young Adulthood Following Gonadotropin-Releasing Hormone Analog Treatment and Cross-Sex Hormone Treatment in Adolescents With Gender Dysphoria. The Journal of Clinical Endocrinology & Metabolism 100, E270-E275, doi:10.1210/jc.2014-2439 (2015)). Other potential adverse effects include disfiguring acne, high blood pressure, weight gain, abnormal glucose tolerance, breast cancer, liver disease, thrombosis, and cardiovascular disease. See Seal, L. J. A review of the physical and metabolic effects of cross-sex hormonal therapy in the treatment of gender dysphoria. Annals of Clinical Biochemistry 53, 10-20, doi:10.1177/0004563215587763 (2016); Banks, K., Kyinn, M., Leemaqz, S. Y., Sarkodie, E., Goldstein, D., & Irwig, M. S. (2021). See also, Blood Pressure Effects of Gender-Affirming Hormone Therapy in Transgender and Gender-Diverse Adults. *Hypertension (Dallas, Tex.: 1979)*, HYPERTENSIONAHA12016839. Advance online publication. https://doi.org/10.1161/HYPERTENSIONAHA.120.16839; Getahun, D., Nash, R., Flanders, W. D., Baird, T. C., Becerra-Culqui, T. A., Cromwell, L., Hunkeler, E., Lash, T. L., Millman, A., Quinn, V. P., Robinson, B., Roblin, D., Silverberg, M. J., Safer, J., Slovis, J., Tangpricha, V., & Goodman, M. (2018). Cross-sex Hormones and Acute Cardiovascular

Events in Transgender Persons: A Cohort Study. *Annals of internal medicine*, *169*(4), 205–213. https://doi.org/10.7326/M17-2785; Spyridoula Maraka, Naykky Singh Ospina, Rene Rodriguez-Gutierrez, Caroline J Davidge-Pitts, Todd B Nippoldt, Larry J Prokop, M Hassan Murad, Sex Steroids and Cardiovascular Outcomes in Transgender Individuals: A Systematic Review and Meta-Analysis, *The Journal of Clinical Endocrinology & Metabolism*, Volume 102, Issue 11, 1 November 2017, Pages 3914–3923, https://doi.org/10.1210/jc.2017-01643.

62. LONG TERM EFFECTS ARE UNKNOWN. Such treatments are not generally accepted by the relevant scientific community and have no known nor published error rate. Since strategies for the treatment of transgender children as summarized by the Endocrine Society guidelines are relatively new, long-term outcomes are unknown. Evidence presented as support for short-term reductions in psychological distress following social transition in a "gender affirming" environment remains inconclusive. When considered apart from advocacy-based agendas, multiple potential confounders are evident. The most notable deficiencies of existing research are the absence of proper control subjects and lack of randomization in study design. See Hruz, P. W. Deficiencies in Scientific Evidence for Medical Management of Gender Dysphoria. *Linacre Q* 87, 34-42, doi:10.1177/0024363919873762 (2020). Although appropriate caution is warranted in extrapolating the outcomes observed from prior studies with current treatments, adults who have undergone social transition with or without surgical modification of external genitalia continue to have *rates of depression, anxiety, substance abuse and suicide far above the background population*. See Adams, N., Hitomi, M. & Moody, C. Varied Reports of Adult Transgender Suicidality: Synthesizing and Describing the Peer-Reviewed and Gray Literature. Transgend Health 2, 60-75, doi:10.1089/trgh.2016.0036 (2017); see also Dhejne, C. et al. Long-

term follow-up of transsexual persons undergoing sex reassignment surgery: cohort study in Sweden. PLoS One 6, e16885, doi:10.1371/journal.pone.0016885 (2011)).

63. MEDICAL TREATMENTS CONTRARY TO THE SCIENCE COULD RESULT IN IRREVERSIBLE HARMS TO MANY PATIENTS WHO WOULD OTHERWISE HAVE RECOVERED NATURALLY FROM GENDER DYSPHORIA: Of particular concern is the likelihood that naively requested gender transition "treatments" and social changes could interfere with known very high rates of natural-untreated resolution of sex-gender discordance. Any activity that encourages or perpetuates transgender persistence for those who would otherwise desist could cause significant harm, particularly in light of the current treatment paradigm for persisting individuals. As noted, sterility can often be expected with hormonal or surgical disruption of normal gonadal function. See Cheng PJ, Pastuszak AW, Myers JB, Goodwin IA, Hotaling JM. Fertility concerns of the transgender patient. Transl Androl Urol. 2019 Jun;8(3):209-218. doi: 10.21037/tau.2019.05.09. PMID: 31380227; PMCID: PMC6626312.

64. YOUNG CHILDREN and PARENTS ARE OFTEN NOT PROPERLY INFORMED or ARE NOT COMPETENT TO GIVE INFORMED CONSENT TO PROCEED WITH EXPERIMENTAL, HAZARDOUS TREATMENTS THAT COULD POTENTIALLY RESULT IN PERMANENT STERILITY: This is a particularly concerning issue given that children are likely to be incapable of giving truly informed consent. See Geier, C. F. Adolescent cognitive control and reward processing: Implications for risk taking and substance use. Hormones and Behavior 64, 333-342, doi:https://doi.org/10.1016/j.yhbeh.2013.02.008 (2013). This concern remains valid when applied to hormonal or surgical treatments that will result in lifelong sterility. In addition, parents are often manipulated and coerced by misinformed political activists or providers who threaten them with dire warnings that the only two options are "treatment or suicide".

These "threats" ignore data that challenge this biased assumption. See D'Angelo, R., Syrulnik, E., Ayad, S. *et al.* One Size Does Not Fit All: In Support of Psychotherapy for Gender Dysphoria. *Arch Sex Behav* 50**,** 7–16 (2021). https://doi.org/10.1007/s10508-020-01844-2

65. SOCIAL CONTAGION HAS BEEN IMPROPERLY IGNORED BY PROVIDERS: Social and psychological support with dignity for adolescents with gender dysphoria does not necessitate acceptance of a unproven, experimental understanding of human sexuality. Rather, policy requirements including social contagion promoting educational processes that can increase the prevalence and persistence of transgender identification have significant potential for inducing long-term harm to affected children.

66. COMPETENT, METHODOLOGICALLY SOUND, LONG-TERM TREATMENT OUTCOME RESEARCH ON GENDER DYSPHORIA INTERVENTIONS HAS NEVER BEEN DONE: There remains a significant and unmet need to improve our understand of the biological, psychological, and environmental basis for the manifestation of patient reports of discordance of gender identity and biological sex in affected individuals. (Olson-Kennedy, J. et al. Research priorities for gender nonconforming/transgender youth: gender identity development and biopsychosocial outcomes. Current Opinion in Endocrinology, Diabetes and Obesity 23, 172-179, (2016)). In particular, there is a concerning lack of randomized controlled trials comparing outcomes of youth with gender dysphoria who are provided public encouragement for "affirming" social gender transition and how such transitioning affects the usual and natural progression to resolution of gender dysphoria in most affected children. Such studies can be ethically designed and executed with provisions for other dignity affirming measures to both treatment groups. See Sugarman J. Ethics in the design and conduct of clinical trials. Epidemiol Rev.

2002;24(1):54-8. doi: 10.1093/epirev/24.1.54. PMID: 12119856; And https://clinicalcenter.nih.gov/recruit/ethics.html

67. DUE TO THE LACK OF QUALITY, CREDIBLE SUPPORTIVE RESEARCH GENDER AFFIRMING INTERVENTIONS REMAIN EXPERIMENTAL and HIGHLY CONTROVERSIAL. Gender identity is consolidated during puberty and adolescence as young people's bodies become more sexually differentiated and mature. How this normally happens is not well understood, so it is imperative to be cautious about interfering with this complex natural process. Far from being cautious and prudent in using puberty blockers to treat gender dysphoria, too many providers engaged in gender affirming medical interventions are conducting an unethical and risky experiment that does not come close to the ethical standards demanded in other areas of medicine. No one really knows all the potential consequences of puberty blocking as a treatment for gender dysphoria, but there are some known effects of pubertal suppression on children who are physiologically normal, and these carry long-term health risks. Children placed on puberty blockers have slower rates of growth in height, and an elevated risk of low bone-mineral density. Another possible effect of blocking normally timed puberty is alteration of normal adolescent brain maturation. (See Arain, M., Haque, M., Johal, L., Mathur, P., Nel, W., Rais, A., Sandhu, R., & Sharma, S. (2013). Maturation of the adolescent brain. *Neuropsychiatric disease and treatment*, *9*, 449–461. https://doi.org/10.2147/NDT.S39776).

When followed by cross-sex hormones, known and potential effects include disfiguring acne, high blood pressure, weight gain, abnormal glucose tolerance, breast cancer, liver disease, thrombosis, and cardiovascular disease. Tragically, those children who persist in their transgender identity and take puberty blockers and cross-sex hormones are *expected to become sterile*. Given what we already know about puberty blocking and how much remains unknown, it

is not surprising that the use of GnRH analogues for puberty suppression in children with gender dysphoria is not FDA-approved. The off-label prescription of these drugs is legal *but unethical* outside the setting of a carefully controlled and supervised clinical trial. See Hruz, Mayer, and McHugh, "Growing Pains." Trans activist professionals act as if there is a firm scientific consensus that it is safe and effective to treat gender dysphoria by using GnRH analogues to suppress normal puberty indefinitely. But this is far from the reality, as I, together with Mayer and McHugh, have pointed out: "Whether puberty suppression is safe and effective when used for gender dysphoria remains unclear and unsupported by rigorous scientific evidence." Thus, it is not generally accepted by the relevant scientific community. Instead of regarding puberty blocking as a "prudent and scientifically proven treatment option," courts of law, parents, and the medical community *should view it as a "drastic and experimental measure*." (See Hruz, Mayer, and McHugh, 2017.) The use of any experimental medical treatment on children calls for "especially intense scrutiny, since children cannot provide proper legal consent to experimental medical treatments—especially treatments that may harm natural gender processes and produce sterility.

The rapid acceptance of puberty suppression as a treatment for gender dysphoria with little scientific support or scrutiny should raise concerns about the welfare of the children who receive such treatments. In particular, we should question the claim that it is both physiologically and psychologically "reversible." This includes the alteration of a temporally dependent developmental process. After an extended period of pubertal suppression one cannot "turn back the clock" and reverse changes in the normal coordinated pattern of adolescent psychological development and puberty. (See Hruz, Mayer, and McHugh, "Growing Pains, The New Atlantis: A Journal of Technology and Society, Spring 2017, pg 3-36; see also Vijayakumar N, Op de Macks

Z, Shirtcliff EA, Pfeifer JH. Puberty and the human brain: Insights into adolescent development. Neurosci Biobehav Rev. 2018 Sep;92:417-436. doi: 10.1016/j.neubiorev.2018.06.004. Epub 2018 Jul 1. PMID: 29972766; PMCID: PMC6234123; see also Choudhury S, Culturing the adolescent brain: what can neuroscience learn from anthropology?, *Social Cognitive and Affective Neuroscience*, Volume 5, Issue 2-3, June/September 2010, Pages 159–167, https://doi.org/10.1093/scan/nsp030

68. ACTIVIST ATTEMPTS TO CONTROL PUBLIC DISCUSSION ARE HARMFUL TO SCIENCE: The controversies regarding the risks and potential dangers of the transgender industry cannot be resolved by "cancel culture." As Steven Levine, MD of Case Western has noted, "Among psychiatrists and psychotherapists who practice in the area, *there are currently widely varying views* concerning both the causes of, and appropriate therapeutic responses to, gender dysphoria in children. Dr. Levine went on to state, "Existing studies do not provide a basis for a scientific conclusion as to which therapeutic response results in the best long-term outcomes for affected individuals." Although political advocates have asserted that the "affirmation therapy" model is accepted and agreed with by the overwhelming majority of mental health professionals, many respected academics and providers in the field strongly disagree. For example, J. Cantor, Ph.D. (McGill) published the following opinion in 2019, "almost all clinics and professional associations in the world" do not use "gender affirmation" for prepubescent children and instead "delay any transitions until after the onset of puberty." See J. Cantor (2019), Transgender and Gender Diverse Children and Adolescents: Fact-Checking of AAP Policy, J. of Sex& Marital Therapy, 1, DOI: 10.1080.0092623X.2019.1698481.

69. In the midst of this ongoing international, raging controversy, transgender and allied political activists have attempted to silence open public debate on the risks and benefits of

transgender medical procedures and political ideologies. For example, Ryan Anderson, Ph.D., a policy analyst, wrote a book analyzing the scientific and policy issues involved in assessing the risks and benefits of the current practices of the transgender treatment industry. See Anderson, R., *When Harry Became Sally: Responding to the Transgender Moment*, Encounter Books. Despite widespread scientific interest and positive reviews, the book was banned from sale by the Amazon Corporation. Too many lives are at stake for such blatant suppression of open scientific discussion. Several positive reviews of Dr Ryan's book were posted by notable members of the relevant scientific-ethical community including: Paul McHugh, MD, University Distinguished Professor of Psychiatry, Johns Hopkins University School of Medicine (Dr McHugh was trained at Harvard College and Harvard Medical School. He served as the Chairman of Psychiatry at Johns Hopkins Medical School for decades) and Melissa Moschella, PhD, who served at Columbia University as Director of the Center for Biomedical Ethics in the Department of Medicine and currently at The Catholic University of America. (Dr. Moschella was trained at Harvard College and her PhD is from Princeton University) and Maureen Condic, Associate Professor of Neurobiology and Adjunct Professor of Pediatrics, University of Utah Medical School. (Dr. Condic's training includes a B.A. from the University of Chicago, and a Ph.D. from the University of California, Berkeley) and John Finnis, Ph.D., Professor of Law at Oxford University for 40 years, now Emeritus. (LL.B. from Adelaide University (Australia) and Ph.D. in 1965 from Oxford University as a Rhodes Scholar at University College Oxford.)

International experts from a variety of relevant fields consider the issue of proper and harmful transgender treatments to be a serious controversy that must not be silenced. Other scholars in this contentious field have been threatened and/or silenced by the political and ideo-

logical allies of the gender transition industry. Consider, for example, the case of Alan Josephson, MD, a distinguished psychiatrist. See Kearns, M., Gender Dissenter Gets Fired, National Review, Jan 12, 2019. "Allan M. Josephson is a distinguished psychiatrist who, since 2003, has transformed the division of child and adolescent psychiatry and psychology at the University of Louisville from a struggling department to a nationally acclaimed program. In the fall of 2017 he appeared on a panel at the Heritage Foundation and shared his professional opinion on the medicalization of gender-confused youth. The university responded by demoting him and then effectively firing him." See https://www.nationalreview.com/2019/07/allen-josephson-gender-dissenter-gets-fired/. Theories in the midst of an international firestorm of controversy are clearly not "generally accepted" by the relevant scientific community. The ongoing attempts to ban books and aggressively silence academic debate or "cancel" professionals with alternative views are clear demonstrations of the ongoing and intense controversies surrounding the gender transition industry.

70. Consider also the example of Dr. Lisa Littman at Brown University Medical School. Dr. Littman conducted extensive surveys to assess the experiences of parents involved in an online community for parents of transgender children or "gender skeptical" parents and children. There were 256 completed surveys. Their children were mostly adolescents or young adults. The parents reported that about 80 percent of their (mostly adolescent) children announced their transgender identity "out of the blue" without the long-term history generally associated with gender dysphoria. The parents also reported that transgender identity was linked with mental health issues (an often repeated, reliable finding in multiple studies from multiple nations). The parents also reported that after their children came out as transgender, their children's mental health worsened, as did relationships with family members. The parents also reported a *decline*

in the children's social adjustment after the announcement (e.g., more isolation, more distrust of non-transgender information sources, etc.).

The publication of the Littman paper was greeted by the outrage of trans activists who denounced the paper and Dr. Littman, calling it "hate speech and transphobic." Brown University had initially produced a press release for the paper stating the Littman research provided bold new insights into transgender issues. Once the political attacks began, the University removed it from their announcements. Fortunately, in this case, there was also a counter-outcry from scientists decrying Brown University and the political activists for threatening academic freedom and censoring scientific research that might assist in the treatment of gender dysphoria.

There was also reportedly an academic petition signed by members of the relevant scientific community. For example, Lee Jussim, PhD., Chair of the Psychology Department at Rutgers University wrote, "If the Littman study is wrong, let someone produce evidence that it is wrong. Until that time, if the research p*sses some people off, who cares? Galileo and Darwin p*ssed people off too. Brown University should be ashamed of itself for caving to sociopolitical pressure. Science denial, anyone?" Similarly, Richard B. Krueger, MD (a Harvard Medical School graduate) of Columbia University College of Physicians and Surgeons, board certified psychiatrist specializing in the treatment of sexual disorders wrote, "Brown University's actions in its failure to support Dr. Littman's peer reviewed research are abhorrent." Similarly, Nicholas Wolfinger, PhD (UC Berkeley, UCLA), currently Professor of Family and Consumer Studies at the University of Utah wrote: "The well-being of trans youth and other sexual minorities is best served by more research, not less."

The onslaught of attacks resulted in the journal asking Dr. Littman to publish a "corrected" version of the paper. After careful review, the paper was again published with additional

information but no methodological nor data corrections—as no such errors were found. See https://www.psychologytoday.com/us/blog/rabble-rouser/201903/rapid-onset-gender-dysphoria. See also Littman, L., Correction: Parent reports of adolescents and young adults perceived to show signs of a rapid onset of gender dysphoria, PLOS ONE March 19, 2019, https://doi.org/10.1371/journal.pone.0214157. Dr. Littman's paper was a key initial step in the alternative investigative hypothesis that the very recent and enormous increase in teenage girls seeking "gender transitioning" is due to a social contagion process at school, in peer groups, and on the internet. This theory has yet to be tested in detail.

71. UNDERLYING BIOLOGY IS NOT CHANGED BY ALTERING BODILY FEATURES TO "PASS" AS THE OPPOSITE SEX, NOR DO SUCH ALTERATIONS CHANGE DISEASE VULNERABILITIES ASSOCIATED WITH GENETICALLY-DEFINED SEX: Despite the increasing ability of hormones and various surgical procedures to reconfigure some male bodies to visually pass as female, or vice versa, the biology of the person remains as defined by genetic makeup, normatively by his (XY) or her (XX) chromosomes, including cellular, anatomic, and physiologic characteristics and the particular disease vulnerabilities associated with that chromosomally-defined sex. (See "Institute of Medicine (US) Committee on Understanding the Biology of Sex and Gender Differences. Exploring the Biological Contributions to Human Health: Does Sex Matter?" Wizemann TM, Pardue ML, editors. Washington (DC): National Academies Press (US); 2001. PMID: 25057540.) For instance, the XX (genetically female) individual who takes testosterone to stimulate certain male secondary sex characteristics will nevertheless remain unable to produce sperm and father children. Contrary to assertions and hopes that medicine and society can fulfill the aspiration of the individual with sex-discordant

gender identity to become "a complete man" or "a complete woman," this is not biologically attainable. It is possible for some adolescents and adults to pass unnoticed as the opposite gender that they aspire to be—but with limitations, costs, and risks, as I detail later. See S. Levine (2018), Informed Consent for Transgendered Patients, J. of Sex & Marital Therapy, at 6, DOI: 10.1080/0092623X.2018.1518885 ("Informed Consent"); S. Levine (2016), Reflections on the Legal Battles Over Prisoners with Gender Dysphoria, J. Am. Acad Psychiatry Law 44, 236 at 238 ("Reflections").

72. ONE OF THE MOST CONTROVERSIAL AND CONTENTIOUS ISSUES IN TRANSGENDER SCIENCE IS THE RECENT EPIDEMIC OF ADOLESCENT FEMALE TO MALE GENDER DISCORDANT PATIENTS: How prevalent is the Sudden Onset Gender Dysphoria Epidemic in Teen Girls first described by the research of Dr. Littman at Brown University? In the UK, where centralized medical care provides data to track health care phenomenon, the number of adolescent girls seeking sex transitioning exploded *over 4,000% in the last decade.* Similarly, in the US, where we lack the same kinds of centralized health care data, it has been reported that in 2018 2% (2 in 100) of high school students identified on surveys as "transgender"—this is 200 times greater response— a 20,000% increase—over reports during past decades which showed a rate of only .01 percent (one in 10,000 people). See Johns MM, Lowry R, Andrzejewski J, et al. Transgender Identity and Experiences of Violence Victimization, Substance Use, Suicide Risk, and Sexual Risk Behaviors Among High School Students—19 States and Large Urban School Districts, 2017. MMWR Morb Mortal Wkly Rep 2019; 68:67–71.

Along with this increase in transgender patients and identifiers, has come *a radical and recent transformation of the patient population* from early onset males to rapid onset adolescent girls. Thus currently the majority of new patients with sex-gender discordance are not males with a long, stable history of gender dysphoria since early childhood—as they were for decades—but instead adolescent females with no documented long-term history of gender dysphoria—thus they experienced "rapid onset" transgender identification. Whole groups of female friends in colleges, high schools, and even middle schools across the country are reportedly coming out together in peer group clusters as "transgender." These are girls who — by detailed parental reports and self-reports—had never experienced any discomfort in their biological sex until they heard a coming-out story from a speaker at a school assembly or discovered the internet (YouTube) community of trans "influencer video stars."

This extraordinary change in new patient demographics appears more consistent with a theory of social contagion than of "immutable identification," "brain structures," "genetics," or other biological hypotheses. Many unsuspecting parents, whose children have never shown any signs for gender discordant feelings or ideas, are awakening to find their daughters in thrall to hip trans YouTube stars and "gender-affirming" educators and activist therapists who push life-changing interventions on these young girls—including double mastectomies and hormonal puberty blockers that can potentially cause permanent infertility. See Littman L. Parent reports of adolescents and young adults perceived to show signs of a rapid onset of gender dysphoria. PLoS One. 2018 Aug 16;13(8):e0202330. doi: 10.1371/journal.pone.0202330. Erratum in: PLoS One. 2019 Mar 19;14(3):e0214157. PMID: 30114286; PMCID: PMC6095578.

73. GENERATING, CONSIDERING, AND TESTING ALTERNATIVE THEORIES PREVENTS CONFIRMATION BIAS. Several theories should be considered, as the science is currently unclear:

We should consider the genetics theory of transgender identity. But his theory cannot explain the rapid expansion of new GD cases (a 4,000% to 20,000% increase), as our genome is simply not changing that fast.

We should consider the "brain structures" theory of transgender identity. Yet there is only weak medical evidence to support this theory, and it cannot explain the rapid expansion of new gender dysphoria cases because brain structures are not changing that fast.

We should consider the theory that increased social acceptance of the transgender lifestyle is leading many people who were transgender all along to come out. Yet this theory fails to explain why *males and older women are not also coming out in the same huge numbers* and not coming out in "social peer group clusters," as adolescent females are reportedly doing.

We should consider the "immutable gender identity" theory. Yet this theory fails to explain the rapid expansion of patients. In addition, the "immutable" theory fails to explain the rapid expansion of "Rapid Onset Gender Dysphoria" reports—newly "trans" adolescent girl patients who reportedly showed no indication of gender dysphoria previously.

Having considered alternative theories—to avoid confirmation bias—it appears that another alternative theory might well be the most applicable, rational theory to explain the extreme, recent increases in the GD patient population: the Social Contagion hypothesis. Social contagion effects are also reportedly responsible for the massive, rapid increase in "recovered repressed memory" cases and also the extraordinary expansion of "multiple personality disorder"

cases in the 1990s. I also note the alternative investigative hypothesis that *social contagion effects would appear to be psychological/psychiatric problems and NOT physical medical problems requiring hormonal or surgical "treatments."*

74. ADOLESCENT FEMALE PSYCHOLOGY RESEARCH SHOWS WELL-DOCUMENTED PEER INFLUENCES on ANOREXIA, BULIMIA, DRUG ABUSE, and now GENDER DISCORDANT ("TRANSGENDER") SYMPTOMS. The Social Contagion theory for the large increase in reported Rapid Onset Gender Dysphoria in adolescent girls appears to be the most rational explanation for the reportedly dramatic (rapid, media related, hundreds of times increase, YouTube influenced, Peer Group influenced) explosion of gender discordant patients among adolescent female friend groups.

Adolescent female social contagion effects in psychiatric illness are well-known and well documented. Consider, for example, Bulimia and Anorexia — both of which spread rapidly in adolescent female friend groups. Se Allison S, Warin M, Bastiampillai T. Anorexia nervosa and social contagion: clinical implications. Aust N Z J Psychiatry. 2014 Feb;48(2):116-20. doi: 10.1177/0004867413502092. Epub 2013 Aug 22. PMID: 23969627.

It has been known for decades that adolescent females are highly prone to social contagion effects spreading psychiatric symptoms—e.g., Anorexia, Bulimia, Drug Abuse, etc.) are well known to be subject to "cluster" and "friendship" contagions as teens girls (and especially troubled teen girls) co-ruminate and share feelings at very high rates and with emotional depth. See, e.g., Crandall CS. Social contagion of binge eating. J Pers Soc Psychol. 1988 Oct;55(4):588-98. doi: 10.1037//0022-3514.55.4.588. PMID: 3193348.

For example, Prof. Amanda Rose at the University of Missouri has conducted research to understand why adolescent girls show such susceptibility to social contagion with psychiatric symptoms—"Teenage girls share symptoms via social contagions because their friendship processes involve "co-rumination," that is, taking on the emotional pain and concerns of their friends." See R. Schwatz-Mette and A. Rose, Co-Rumination Mediates Contagion of Internalizing Symptoms Within Youths' Friendships, Developmental Psychology 48(5):1355-65, February 2012, DOI: 10.1037/a0027484 Developmental Psychology, Vol. 48, No. 5, 1355–1365 0012-1649/12/$12.00 DOI: 10.1037/a0027484. This could be one explanation for why we are hearing increasing reports of" clusters" and "friend groups" of teen girls who are adopting a "transgender identity" and "transitioning" as friends together.

75. IDEOLOGICAL-POLITICAL PRESSURE SEEKS TO INSTITUTIONALIZE THE SYSTEMATIC NEGLIGENCE and METHODOLOGICAL ERROR OF CONFIRMATION BIAS: Because of the efforts of ill-informed legal and medical professionals and the intense activity of political trans activists— health providers (in many fields) are now NOT permitted to openly asks questions, properly investigate alternative diagnoses, or explore alternative hypotheses for the symptoms of gender dysphoria patients. They are compelled (sometimes under fear of employment termination or legal attacks) to adopt a patient's self-diagnosis and only support "transgender affirming" medical interventions. These providers are thus being pressured and/or compelled to commit the scientific and medical malpractice of Confirmation Bias. (See detailed discussion above on confirmation bias.) Unexamined "affirming" medical interventions—based on uncorroborated patient self-reports, assessed by mental health professionals with no methodology for discerning true from false patient reports, with no ability to decipher accurate from contaminated "memories," with no alternative treatments offered, and no alternative explanations

(e.g., social contagion) explored—are medical, psychological, surgical, and endocrinological negligence and a violation of the most basic, essential scientific and medical practices and methods requiring the generation and testing of alternative hypotheses. In sum, the industry actually requires "confirmation bias"—one of the most serious of all methodological diagnostic failures. See e.g. Mendel, R. et. al., Confirmation bias: why psychiatrists stick to wrong preliminary diagnoses, Psychological Medicine, Oxford University Press, 20 May 2011 ("Diagnostic errors can have tremendous consequences because they can result in a fatal chain of wrong decisions. Experts assume that physicians' desire to confirm a preliminary diagnosis while failing to seek contradictory evidence is an important reason for wrong diagnoses. This tendency is called 'confirmation bias."); see also, Doherty, T.S. and Carroll, A.E., Believing in Overcoming Cognitive Biases, American Medical Association Journal of Ethics, 2020;22(9):E773-778 ("Like all humans, health professionals are subject to cognitive biases that can render diagnoses and treatment decisions vulnerable to error. Learning effective debiasing strategies and cultivating awareness of confirmation, anchoring, and outcomes biases and the affect heuristic, among others, and their effects on clinical decision making should be prioritized in all stages of medical education…. Confirmation bias is the selective gathering and interpretation of evidence consistent with current beliefs and the neglect of evidence that contradicts them."); see also, Hershberger PJ, Part HM, Markert RJ, Cohen SM, Finger WW. Teaching awareness of cognitive bias in medical decision making. *Acad Med*. 1995;70(8):661.

76. GIVEN THE LACK OF RESEARCH, IT IS RECKLESS TO PERMIT CHILDREN TO SELF-DIAGNOSE WHEN THE "TREATMENTS" WILL PRODUCE LIFE-LONG STERILIZATION and/or OTHER PERMANANT INJURIES TO NORMAL, HEALTHY ORGANS: In some jurisdictions in America now child or adolescent patients can—without parental

permission or even parental notification—receive hormones to begin the experimental treatment of "transitioning" with no competent diagnostic investigation or professional assessment of gender dysphoria and no competent medical investigation, testing, or consideration of alternative hypotheses. Worst of all, providers can be coerced by law, collegial pressures, or "cancel culture" ideology to comply with the troubled child's/teen's/patient's amateur self-diagnosis or be faced with potentially career ending allegations of "conversion therapy." Politically tainted, pseudo-science, experimental, unproven medical practices have caused grave harm to millions in the past. (See the discussion of lobotomies, repressed memory therapy, multiple personality therapy, rebirthing therapy, etc. above.) Unethical, politically driven, experimental medical errors should not be repeated today.

77. EXPERIMENTATION on SEX-GENDER DISCORDANT PATIENTS IS ESPECIALLY LIKELY TO CAUSE HARM TO MINORITY PATIENTS FROM HISTORICALLY MARGINALIZED COMMUNITIES. The development of effective strategies to impact long-term physical and psychological health in patients who experience sex-discordant gender identity should be undertaken with recognition of the disproportionate burden of this condition in a number of vulnerable minority populations of children. These include:

- children with a prior history of psychiatric illness (See, e.g., Kaltiala-Heino, R., Sumia, M., Työläjärvi, M., & Lindberg, N. (2015). Two years of gender identity service for minors: overrepresentation of natal girls with severe problems in adolescent development. *Child and adolescent psychiatry and mental health*, *9*, 9. https://doi.org/10.1186/s13034-015-0042-y

- children of color (See, e.g., G. Rider et al. (2018), Health and Care Utilization of Transgender/Gender Non-Conforming Youth: A Population Based Study, Pediatrics at 4, DOI: 10.1542/peds.2017-1683.
- children with mental developmental disabilities (See, e.g., Bedard, C., Zhang, H.L. & Zucker, K.J. Gender Identity and Sexual Orientation in People with Developmental Disabilities. *Sex Disabil* 28**,** 165–175 (2010). https://doi.org/10.1007/s11195-010-9155-7
- children on the autistic spectrum (See, e.g., de Vries, A. L., Noens, I. L., Cohen-Kettenis, P. T., van Berckelaer-Onnes, I. A. & Doreleijers, T. A. Autism spectrum disorders in gender dysphoric children and adolescents. *J Autism Dev Disord* 40, 930-936, doi:10.1007/s10803-010-0935-9 (2010).
- children residing in foster care homes and adopted children (See, e.g., See e.g., D. Shumer et al. (2017), Overrepresentation of Adopted Adolescents at a Hospital-Based Gender Dysphoria Clinic, Transgender Health Vol. 2(1).

78. "GENDER AFFIRMATIVE" TREATMENTS DAMAGE or DESTROY HEALTHY BODILY ORGANS, LEADING TO LOSS OF ESSENTIAL BODILY FUNCTIONS (e.g. Medically Induced Sterilization): Despite the fact that gender dysphoria represents a psychological condition (as catalogued in the DSM since the third edition of this publication), some conceptualize the condition as a medical illness similar to cancer. When considered from this viewpoint, the goal of "treatment" is to alter the appearance of the body to conform to a patient's perceived sexual identity, including the physical removal of unwanted "diseased" sexual organs. Since undesired body parts are fully formed and functional prior to hormonal or surgical intervention, the

result of these "therapies" is injury to innate sexual ability. In particular, loss or alteration of primary sexual organs leads directly to impairment of reproductive potential. Recognition of this obvious consequence is the basis for the development of new arenas of medical practice where there is an attempt to restore what has been intentionally destroyed. See, e.g., Ainsworth AJ, Allyse M, Khan Z. Fertility Preservation for Transgender Individuals: A Review. Mayo Clin Proc. 2020 Apr; 95(4):784-792. doi: 10.1016/j.mayocp.2019.10.040. Epub 2020 Feb 27. PMID: 32115195. As correctly noted by Dr. Levine, gender dysphoria is unique in that it is "the only psychiatric condition to be treated by surgery, even though no endocrine or surgical intervention package corrects any identified biological abnormality." See, e.g., S. Levine (2016), Reflections on the Legal Battles Over Prisoners with Gender Dysphoria, J. American Academy of Psychiatry and Law, 44, 236 at 238 ("Reflections"), at 240.)

79. A DEVELOPMENTAL MODEL PROVIDES ALTERNATIVE HYPOTHESES TO THE UNEXAMINED "AFFIRMATON" MODEL: The diagnosis of "gender dysphoria" encompasses a diverse array of conditions. While the etiologic contributors to sex discordant gender identity remain to be fully identified and characterized, differences both in kind and degree within individuals and across varied populations creates challenges in establishing specific approaches to alleviate associated suffering. For example, data from adults cannot be assumed to apply equally to children. Nor can data from children who present with sex discordant gender pre-pubertally be presumed to apply to the growing number of post-pubertal adolescent females presenting with this condition.

80. NO COMPETENT, SCIENTIFICALLY VALID and RELIABLE COST-BENEFIT ANALYSIS HAS BEEN DONE ON "GENDER AFFIRMATIVE" TREATMENTS. When the FDA tests a drug, the safety analysis looks at all related risks. Specifically, the drug must not

only be effective, but it must not cause side effects that are more damaging than the proposed treatment. This is one of the gender transition industry's key weaknesses. Not only have the "treatments" *not* been proven reliably effective compared to *no* treatment, they are designed with existing knowledge of well-documented, long-term health problems and damages (e.g., testosterone use by transgender men increases the risk of fatal heart disease, estrogen use by transgender women increases risk of blood clots and strokes, gender transition industry treatments—if completed—can cause life-long sterility, etc.).

81. LACK OF INTEGRATION OF CARE BY PROVIDERS IN THE GENDER TRANSITION INDUSTRY INCREASES DANGERS TO PATIENTS: It is too often the case in the gender transition industry that "nobody is in charge" of a patient's care. The mental health professionals know little about the risks of surgery and the surgeons know little about the defects in mental health methodologies and the endocrinologists are only following the hormonal treatments and many are not aware of the serious methodological research defects in this field. Such disjointed care can increase dangers to patients. On cases showing such a lack of integration and uncertain chain of command, reliable measurements of the divergent, multi-disciplinary risks to patients of these treatments (e.g. hormones, incomplete therapy, or surgical side effects) are precluded and too often ignored. The plaintiffs' expert witness reports in this case appear to ignore this issue.

82. SUMMARY OPINIONS:

- There are no long-term, peer-reviewed published, reliable and valid, research studies documenting the number or percentage of patients receiving gender affirming medical interventions who are helped by such procedures.

- There are no long-term, peer-reviewed published, reliable and valid, research studies documenting the number or percentage of patients receiving gender affirming medical interventions who are injured or harmed by such procedures.
- There are no long-term, peer-reviewed published, reliable and valid, research studies documenting the reliability and validity of assessing gender identity by relying solely upon the expressed desires of a patient.
- There are no long-term, peer-reviewed published, reliable and valid, research studies documenting any valid and reliable biological, medical, surgical, radiological, psychological, or other objective assessment of gender identity or gender dysphoria.
- A currently unknown percentage and number of patients reporting gender dysphoria suffer from mental illness(es) that complicate and may distort their judgments and perceptions of gender identity.
- A currently unknown percentage and number of patients reporting gender dysphoria are being manipulated by a—peer group, social media, YouTube role modeling, and/or parental—social contagion and social pressure processes.
- Patients suffering from gender dysphoria or related issues have a right to be protected from experimental, potentially harmful treatments lacking reliable and valid, peer reviewed, published, long-term scientific evidence of safety and effectiveness.
- It would be a serious violation of licensing rules, ethical rules, and professional standards of care for a health care professional to provide gender transition or related procedures to any patient without first properly obtaining informed consent

including informing the patient and/or guardian(s) of the lack of valid and reliable on the long-term risks and benefits of "affirmation" treatments.

- A large percentage of children (over 80% in some studies) who questioned their gender identity will, if left alone, develop an acceptance of their natal (biological) sex.
- Medical treatments may differ significantly by sex according to chromosomal assessment but not gender identity. Misinforming physicians of a patient's biological sex can have deleterious effects on treatment for medical conditions.
- Affirmation medical treatments—hormones and surgery—for gender dysphoria and "transitioning" have not been accepted by the relevant scientific communities (biology, genetics, neonatolgy, medicine, psychology, etc).
- Gender transition "affirmation" medical assessments and treatments—hormones and surgery—for gender dysphoria and "transitioning" have no known, peer reviewed and published error rates—the treatments and assessment methods lack demonstrated, reliable and valid error rates.
- Political activists, political activist physicians, and politically active medical organizations that operate by voting methodologies (e.g, WPATH, the American Medical Association, the American Academy of Pediatrics, the American Endocrine Society) are not the relevant scientific community, they are politically active professional organizations. These organizations operate via consensus-seeking methodology (voting) and political ideologies rather than evidence-based scientific methodologies.

- Experts in legal cases have an ethical obligation to honestly, fairly, and accurately discuss the international controversy regarding the safety, effectiveness, reliability, and credibility of the gender transition industry.
- With the limited and poor quality data currently available on the purported efficacy of blocking normally timed puberty, administering of cross-sex hormones and gender affirming surgeries in alleviating psychological morbidity for youth who experience sex-discordant gender identity and the associated serious medical risks associated with these interventions, it cannot be concluded that this approach is "medically necessary."

83. LIMITATIONS ON EXPERT REPORTS: My opinions and hypotheses in this matter are—as all expert reports—subject to the limitations of documentary and related evidence, the impossibility of absolute predictions, as well as the limitations of social, biological, and medical science. I have not met with, nor personally interviewed, anyone in this case. As always, I have no expert opinions regarding the veracity of witnesses in this case. I have not yet reviewed all of the evidence in this case and my opinions are subject to change at any time as new information becomes available to me. Only the trier of fact can determine the credibility of witnesses and how scientific research may or may not be related to the specific facts of any particular case. In my opinion, a key role of an expert witness is to help the court, lawyers, parties, and the public understand and apply reliable scientific, technical, and investigative principles, hypotheses, methods, and information.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 1, 2022.

Paul W. Hruz, M.D., Ph.D.

Curriculum Vitae

Date: 05/01/2022 01:47 PM
Name: Paul W. Hruz, M.D., Ph.D.

Contact Information

Office: [redacted]

Mail: Washington University in St. Louis
School of Medicine
Department of Pediatrics
Endocrinology and Diabetes
660 South Euclid Avenue
St Louis MO 63110

Email: Office: [redacted]

Present Position

Associate Professor of Pediatrics, Endocrinology and Diabetes
Associate Professor of Pediatrics, Cell Biology & Physiology

Education

1987	BS, Chemistry, Marquette University, Milwaukee, WI
1993	PhD, Biochemistry, Medical College of Wisconsin, Milwaukee, WI Elucidation of Structural, Mechanistic, and Regulatory Elements in 3-Hydroxy-3-Methlyglutaryl-Coenzyme A Lyase, Henry Miziorko
1994	MD, Medicine, Medical College of Wisconsin, Milwaukee, WI
1994 - 1997	Pediatric Residency, University of Washington, Seattle, Washington
1997 - 2000	Pediatric Endocrinology Fellowship, Washington University, Saint Louis, MO
2017	Certification in Healthcare Ethics, National Catholic Bioethics Center, Philadelphia, PA

Academic Positions / Employment

1996 - 1997	Locum Tenens Physician, Group Health of Puget Sound Eastside Hospital, Group Health of Puget Sound Eastside Hospital, Seattle , WA
2000 - 2003	Instructor in Pediatrics, Endocrinology and Diabetes, Washington University in St. Louis, St. Louis, MO
2003 - 2011	Assistant Professor of Pediatrics, Endocrinology and Diabetes, Washington University in St. Louis, St. Louis, MO
2004 - 2011	Assistant Professor of Pediatrics, Cell Biology & Physiology, Washington University in St. Louis, St. Louis, MO
2011 - Pres	Associate Professor of Pediatrics, Cell Biology & Physiology, Washington University in St. Louis, St. Louis, MO

2011 - Pres	Associate Professor of Pediatrics, Endocrinology and Diabetes, Washington University in St. Louis, St. Louis, MO
2012 - 2017	Division Chief, Endocrinology and Diabetes, Washington University in St. Louis, St. Louis, MO

Clinical Title and Responsibilities

	General Pediatrician, General Pediatric Ward Attending: 2-4 weeks per year, St. Louis Children's Hospital
2000 - Pres	Pediatric Endocrinologist, Endocrinology Night Telephone Consult Service: Average of 2-6 weeks/per yr, St. Louis Children's Hosptial
2000 - Pres	Pediatric Endocrinologist, Inpatient Endocrinology Consult Service: 3-6 weeks per year, St. Louis Children's Hospital
2000 - Pres	Pediatric Endocrinologist, Outpatient Endocrinology Clinic: Approximately 50 patient visits per month, St. Louis Children's Hospital

Teaching Title and Responsibilities

2009 - Pres	Lecturer, Markey Course-Diabetes Module
2020 - 2020	Facilitator, Reading Elective-Interdisciplinary/Miscellaneous Course #M80-800, Washington University School of Medicine

University, School of Medicine and Hospital Appointments and Committees

University

2012 - 2020	Disorders of Sexual Development Multidisciplinary Care Program

School of Medicine

2013 - 2020	Molecular Cell Biology Graduate Student Admissions Committee
2014 - Pres	Research Consultant, ICTS Research Forum - Child Health

Hospital

2000 - Pres	Attending Physician, St. Louis Children's Hospital

Medical Licensure and Certifications

1997 - Pres	Board Certified in General Pediatrics
2000 - Pres	MO Stae License #2000155004
2001 - Pres	Board Certified in Pediatric Endocrinology & Metabolism

Honors and Awards

1987	National Institute of Chemists Research and Recognition Award
1987	Phi Beta Kappa
1987	Phi Lambda Upsilon (Honorary Chemical Society)
1988	American Heart Association Predoctoral Fellowship Award
1994	Alpha Omega Alpha
1994	Armond J. Quick Award for Excellence in Biochemistry

1994	NIDDK/Diabetes Branch Most Outstanding Resident
1998	Pfizer Postdoctoral Fellowship Award
2002	Scholar, Child Health Research Center of Excellence in Developmental Biology at Washington University
2013	Julio V Santiago, M.D. Scholar in Pediatrics
2017	Redemptor Hominis Award for Outstanding Contributions to the Study of Bioethics
2018	Eli Lilly Outstanding Contribution to Drug Discovery: Emerging Biology Award
2018	Scholar-Innovator Award, Harrington Discovery Institute
2021	Linacre Award

Editorial Responsibilities

Editorial Ad Hoc Reviews

AIDS
AIDS Research and Human Retroviruses
American Journal of Pathology
American Journal of Physiology
British Journal of Pharmacology
Circulation Research
Clinical Pharmacology & Therapeutics
Comparative Biochemistry and Physiology
Diabetes
Experimental Biology and Medicine
Future Virology
Journal of Antimicrobial Chemotherapy
Journal of Clinical Endocrinology & Metabolism
Journal of Molecular and Cellular Cardiology
Obesity Research

2000 - Pres	Journal of Biological Chemistry
2013 - Pres	PlosOne
2016 - Pres	Scientific Reports
2018 - Pres	Nutrients

Editorial Boards

2014 - 2015	Endocrinology and Metabolism Clinics of North America

National Panels, Committees

2017 - Pres	Consultant, Catholic Health Association
2021 - Pres	Consulting Fellow, National Catholic Bioethics Center

National Boards

2020 - Pres	WU ICTS Clinical and Translational Research Funding Program (CTRFP) Review Committee

Community Service Contributions

Professional Societies and Organizations

1992 - 2004	American Medical Association
1994 - 2005	American Academy of Pediatrics
1995 - 2014	American Association for the Advancement of Science
1998 - Pres	American Diabetes Association
1998 - Pres	Endocrine Society
1999 - Pres	Pediatric Endocrine Society
2004 - 2007	American Chemical Society
2004 - 2018	American Society for Biochemistry and Molecular Biology
2004 - 2020	Society for Pediatric Research
2005 - 2020	Full Fellow of the American Academy of Pediatrics
2013 - Pres	International Society for Pediatric and Adolescent Diabetes
2018 - Pres	American College of Pediatricians

Major Invited Professorships and Lectures

2002	Pediatric Grand Rounds, St. Louis Children's Hospital, St Louis, MO
2004	National Disease Research Interchange, Human Islet Cell Research Conference, Philadelphia, PA
2004	NIDA-NIH Sponsored National Meeting on Hormones, Drug Abuse and Infections, Bethesda, MD
2005	Endocrine Grand Rounds, University of Indiana, Indianapolis, IN
2005	The Collaborative Institute of Virology, Complications Committee Meeting, Boston, MA
2006	Metabolic Syndrome Advisory Board Meeting, Bristol-Meyers Squibb, Pennington, NJ
2007	American Heart Association and American Academy of HIV Medicine State of the Science Conference: Initiative to Decrease Cardiovascular Risk and Increase Quality of Care for Patients Living with HIV/AIDS, Chicago, IL
2007	Minority Access to Research Careers Seminar, University of Arizona, Tucson, AZ
2007	MSTP Annual Visiting Alumnus Lecture, Medical College of Wisconsin , Milwaukee, WI
2007	Pediatric Grand Rounds, St Louis Children’s Hospital, St Louis, MO
2008	Division of Endocrinology, Diabetes and Nutrition Grand Rounds, Boston University, Boston, MA
2009	Pediatric Grand Rounds, St Louis Children's Hospital, St. Louis, MO
2010	American Diabetes Association Scientific Sessions, Symposium Lecture Orlando, FL
2010	School of Biological Sciences Conference Series, University of Missouri Kansas City, Kansas City, MO
2011	Life Cycle Management Advisory Board Meeting, Bristol-Myers Squibb,, Chicago, IL
2013	Pediatric Grand Rounds, St Louis Children's Hospital, ST LOUIS, MO
2013	Clinical Practice Update Lecture, St Louis Children's Hospital, St Louis, MO
2014	Pediatric Academic Societies Meeting,, Vancouver, Canada
2014	American Diabetes Association 74th Scientific Sessions, , San Francisco, CA
2017	Division of Pediatric Endocrinology Metabolism Rounds, University of Michigan, Ann Arbor, MI

2017 Catholic Medical Association National Conference, Denver, CO

2018 Obstetrics, Gynecology & Women's Health Grand Rounds, Saint Louis University, St. Louis, MO

2018 Medical Grand Rounds, Sindicato Médico del Uruguay, Montevideo, Uraquay

2018 Internal Medicine Grand Rounds, Texas Tech , Lubbock, TX

2019 Veritas Center for Ethics in Public Life Conference, Franciscan University, Steubenville, OH

2019 MaterCare International Conference, Rome, Italy

2019 Child Health Policy Forum, Notre Dame University, South Bend , IN

2021 Obstetrics & Gynecology Grand Rounds, University of Tennessee, Knoxville , TN

Consulting Relationships and Board Memberships

1996 - 2012 Consultant, Bristol Myers Squibb

1997 - 2012 Consultant, Gilead Sciences

Research Support

Completed Governmental Support

2001 - 2006 K-08 A149747, NIH
Mechanism of GLUT4 Inhibition by HIV Protease Inhibitors
Role: Principal Investigator

2007 - 2012 R01
Mechanisms for Altered Glucose Homeostasis During HAART
Role: Principal Investigator
Total cost: $800,000.00

2009 - 2011 R01 Student Supp
Mechanisms for Altered Glucose Homeostasis During HAART
Role: Principal Investigator
Total cost: $25,128.00

2009 - 2014 R01
Direct Effects of Antiretroviral Therapy on Cardiac Energy Homeostasis
Role: Principal Investigator
Total cost: $1,250,000.00

2017 - 2019 R-21 1R21AI130584 , National Institutes of Health
SELECTIVE INHIBITION OF THE P. FALCIPARUM GLUCOSE TRANSPORTER PFHT
Role: Principal Investigator
Total cost: $228,750.00

Completed Non-Governmental Support

2015 Novel HIV Protease Inhibitors and GLUT4
Role: Principal Investigator

2008 - 2011 II
Insulin Resistance and Myocardial Glucose Metabolism in Pediatric Heart Failure
Role: Co-Investigator
PI: Hruz
Total cost: $249,999.00

2009 - 2012 Research Program
Regulation of GLUT4 Intrinsic Activity
Role: Principal Investigator
Total cost: $268,262.00

2010 - 2011 Protective Effect of Saxagliptin on a Progressive Deterioration of Cardiovascular Function
Role: Principal Investigator

2012 - 2015 II
Solution-State NMR Structure and Dynamics of Facilitative Glucose Transport Proteins
Role: Principal Investigator
Total cost: $375,000.00

2017 - 2020 Prevention And Treatment Of Hepatic Steatosis Through Selective Targeting Of GLUT8
Role: Co-Principal Investigator
PI: DeBosch
Total cost: $450,000.00

2017 - 2021 Matching Micro Grant
Novel Treatment of Fatty Liver Disease (CDD/LEAP)
Role: Principal Investigator
Total cost: $68,500.00

2018 - 2021 LEAP Innovator Challenge
Novel Treatment of Fatty Liver Disease
Role: Principal Investigator
Total cost: $68,500.00

2019 - 2021 Scholar-Innovator Award HDI2019-SI-4555 , Harrington Foundation
Novel Treatment of Non-Alcoholic Fatty Liver Disease
Role: Principal Investigator
Total cost: $379,000.00

Current Governmental Support

2021 - 2025 R-01 DK126622 (Co-investigator), 8/25/2021-7/31/2025, NIH-NIDDK, , NIH
Leveraging glucose transport and the adaptive fasting response to modulate hepatic metabolism
Role: Co-Investigator
PI: DeBosch

Pending Non-Governmental Support

2015 Novel HIV Protease Inhibitors and GLUT4
Role: Principal Investigator

Trainee/Mentee/Sponsorship Record

Current Trainees

2019 Ava Suda, Other, Pre-med

Past Trainees

2002 - 2002 Nishant Raj- Undergraduate Student, Other
Study area: Researcher

2002 - 2010 Joseph Koster, PhD, Postdoctoral Fellow
Study area: Researcher

2003 - 2004 Johann Hertel, Medical Student
Study area: Research
Present position: Assistant Professor, University of North Carolina, Chapel Hill, NC

2003 - 2003 John Paul Shen, Medical Student
Study area: Research

2004 - 2005 Carl Cassel- High School Student, Other
Study area: Research

2004 - 2004 Christopher Hawkins- Undergraduate Student, Other
Study area: Researcher

2004 - 2004 Kaiming Wu- High School Student, Other
Study area: Research

2005 - 2005 Helena Johnson, Graduate Student

2005 - 2005 Jeremy Etzkorn, Medical Student
Study area: Researcher

2005 - 2005 Dominic Doran, DSc, Postdoctoral Fellow
Study area: HIV Protease Inhibitor Effects on Exercize Tolerance

2006 - 2006 Ramon Jin, Graduate Student
Study area: Research

2006 - 2006 Taekyung Kim, Graduate Student
Study area: Research

2007 - 2007 Jan Freiss- Undergraduate Student, Other
Study area: Researcher

2007 - 2008 Kai-Chien Yang, Graduate Student
Study area: Research
Present position: Postdoctoral Research Associate, University of Chicago

2007 - 2007 Paul Buske, Graduate Student
Study area: Research

2007 - 2007 Randy Colvin, Medical Student
Study area: Researcher

2008 - 2011 Arpita Vyas, MD, Clinical Fellow
Study area: Research
Present position: Assistant Professor, Michigan State University, Lansing MI

2008 - 2009 Candace Reno, Graduate Student
Study area: Research
Present position: Research Associate, University of Utah

2008 - 2012 Dennis Woo- Undergraduate Student, Other
Study area: Researcher
Present position: MSTP Student, USC, Los Angeles CA

2008 - 2008 Temitope Aiyejorun, Graduate Student
Study area: Research

2009 - 2009 Anne-Sophie Stolle- Undergraduate Student, Other
Study area: Research

2009 - 2009 Matthew Hruz- High School Student, Other
Study area: Research
Present position: Computer Programmer, Consumer Affairs, Tulsa OK

2009 - 2009 Stephanie Scherer, Graduate Student
Study area: Research

2010 - 2014 Lauren Flessner, PhD, Postdoctoral Fellow
Present position: Instructor, Syracuse University

2010 - 2010 Constance Haufe- Undergraduate Student, Other
Study area: Researcher

2010 - 2011 Corinna Wilde- Undergraduate Student, Other
Study area: Researcher

2010 - 2010 Samuel Lite- High School Student, Other
Study area: Research

2011 - 2016 Thomas Kraft, Graduate Student
Study area: Glucose transporter structure/function
Present position: Postdoctoral Fellow, Roche, Penzberg, Germany

2011 - 2011 Amanda Koenig- High School Student, Other
Study area: Research

2011 - 2012 Lisa Becker- Undergraduate Student, Other

2011 - 2011 Melissa Al-Jaoude- High School Students, Other

2014 - 2014 David Hannibal, Clinical Research Trainee

Bibliography

A. Journal Articles

1. Hruz PW, Narasimhan C, Miziorko HM. 3-Hydroxy-3-methylglutaryl coenzyme A lyase: affinity labeling of the Pseudomonas mevalonii enzyme and assignment of cysteine-237 to the active site. *Biochemistry*. 1992;31(29):6842-7. PMID:1637819
2. Hruz PW, Miziorko HM. Avian 3-hydroxy-3-methylglutaryl-CoA lyase: sensitivity of enzyme activity to thiol/disulfide exchange and identification of proximal reactive cysteines. *Protein Sci*. 1992;1(9):1144-53. doi:10.1002/pro.5560010908 PMCID:PMC2142181 PMID:1304393
3. Mitchell GA, Robert MF, Hruz PW, Wang S, Fontaine G, Behnke CE, Mende-Mueller LM, Schappert K, Lee C, Gibson KM, Miziorko HM. 3-Hydroxy-3-methylglutaryl coenzyme A lyase (HL). Cloning of human and chicken liver HL cDNAs and characterization of a mutation causing human HL deficiency. *J Biol Chem*. 1993;268(6):4376-81. PMID:8440722
4. Hruz PW, Anderson VE, Miziorko HM. 3-Hydroxy-3-methylglutaryldithio-CoA: utility of an alternative substrate in elucidation of a role for HMG-CoA lyase's cation activator. *Biochim Biophys Acta*. 1993;1162(1-2):149-54. PMID:8095409
5. Roberts JR, Narasimhan C, Hruz PW, Mitchell GA, Miziorko HM. 3-Hydroxy-3-methylglutaryl-CoA lyase: expression and isolation of the recombinant human enzyme and investigation of a mechanism for regulation of enzyme activity. *J Biol Chem*. 1994;269(27):17841-6. PMID:8027038
6. Hruz PW, Mueckler MM. Cysteine-scanning mutagenesis of transmembrane segment 7 of the GLUT1 glucose transporter. *J Biol Chem*. 1999;274(51):36176-80. PMID:10593902
7. Murata H, Hruz PW, Mueckler M. The mechanism of insulin resistance caused by HIV protease inhibitor therapy. *J Biol Chem*. 2000;275(27):20251-4. doi:10.1074/jbc.C000228200 PMID:10806189
8. Hruz PW, Mueckler MM. Cysteine-scanning mutagenesis of transmembrane segment 11 of the GLUT1 facilitative glucose transporter. *Biochemistry*. 2000;39(31):9367-72. PMID:10924131
9. Hruz PW, Mueckler MM. Structural analysis of the GLUT1 facilitative glucose transporter (review). *Mol Membr Biol*. 2001;18(3):183-93. PMID:11681785

10. Murata H, Hruz PW, Mueckler M. Investigating the cellular targets of HIV protease inhibitors: implications for metabolic disorders and improvements in drug therapy. *Curr Drug Targets Infect Disord*. 2002;2(1):1-8. PMID:12462148
11. Hruz PW, Murata H, Qiu H, Mueckler M. Indinavir induces acute and reversible peripheral insulin resistance in rats. *Diabetes*. 2002;51(4):937-42. PMID:11916910
12. Murata H, Hruz PW, Mueckler M. Indinavir inhibits the glucose transporter isoform Glut4 at physiologic concentrations. *AIDS*. 2002;16(6):859-63. PMID:11919487
13. Koster JC, Remedi MS, Qiu H, Nichols CG, Hruz PW. HIV protease inhibitors acutely impair glucose-stimulated insulin release. *Diabetes*. 2003;52(7):1695-700. PMCID:PMC1403824 PMID:12829635
14. Liao Y, Shikapwashya ON, Shteyer E, Dieckgraefe BK, Hruz PW, Rudnick DA. Delayed hepatocellular mitotic progression and impaired liver regeneration in early growth response-1-deficient mice. *J Biol Chem*. 2004;279(41):43107-16. doi:10.1074/jbc.M407969200 PMID:15265859
15. Shteyer E, Liao Y, Muglia LJ, Hruz PW, Rudnick DA. Disruption of hepatic adipogenesis is associated with impaired liver regeneration in mice. *Hepatology*. 2004;40(6):1322-32. doi:10.1002/hep.20462 PMID:15565660
16. Hertel J, Struthers H, Horj CB, Hruz PW. A structural basis for the acute effects of HIV protease inhibitors on GLUT4 intrinsic activity. *J Biol Chem*. 2004;279(53):55147-52. doi:10.1074/jbc.M410826200 PMCID:PMC1403823 PMID:15496402
17. Yan Q, Hruz PW. Direct comparison of the acute in vivo effects of HIV protease inhibitors on peripheral glucose disposal. *J Acquir Immune Defic Syndr*. 2005;40(4):398-403. PMCID:PMC1360159 PMID:16280693
18. Hruz PW. Molecular Mechanisms for Altered Glucose Homeostasis in HIV Infection. *Am J Infect Dis*. 2006;2(3):187-192. PMCID:PMC1716153 PMID:17186064
19. Turmelle YP, Shikapwashya O, Tu S, Hruz PW, Yan Q, Rudnick DA. Rosiglitazone inhibits mouse liver regeneration. *FASEB J*. 2006;20(14):2609-11. doi:10.1096/fj.06-6511fje PMID:17077279
20. Hruz PW, Yan Q, Struthers H, Jay PY. HIV protease inhibitors that block GLUT4 precipitate acute, decompensated heart failure in a mouse model of dilated cardiomyopathy. *FASEB J*. 2008;22(7):2161-7. doi:10.1096/fj.07-102269 PMID:18256305
21. Hruz PW. HIV protease inhibitors and insulin resistance: lessons from in-vitro, rodent and healthy human volunteer models. *Curr Opin HIV AIDS*. 2008;3(6):660-5. doi:10.1097/COH.0b013e3283139134 PMCID:PMC2680222 PMID:19373039
22. Flint OP, Noor MA, Hruz PW, Hylemon PB, Yarasheski K, Kotler DP, Parker RA, Bellamine A. The role of protease inhibitors in the pathogenesis of HIV-associated lipodystrophy: cellular mechanisms and clinical implications. *Toxicol Pathol*. 2009;37(1):65-77. doi:10.1177/0192623308327119 PMCID:PMC3170409 PMID:19171928
23. Tu P, Bhasin S, Hruz PW, Herbst KL, Castellani LW, Hua N, Hamilton JA, Guo W. Genetic disruption of myostatin reduces the development of proatherogenic dyslipidemia and atherogenic lesions in Ldlr null mice. *Diabetes*. 2009;58(8):1739-48. doi:10.2337/db09-0349 PMCID:PMC2712781 PMID:19509018
24. Guo W, Wong S, Pudney J, Jasuja R, Hua N, Jiang L, Miller A, Hruz PW, Hamilton JA, Bhasin S. Acipimox, an inhibitor of lipolysis, attenuates atherogenesis in LDLR-null mice treated with HIV protease inhibitor ritonavir. *Arterioscler Thromb Vasc Biol*. 2009;29(12):2028-32. doi:10.1161/ATVBAHA.109.191304 PMCID:PMC2783673 PMID:19762785
25. Vyas AK, Koster JC, Tzekov A, Hruz PW. Effects of the HIV protease inhibitor ritonavir on GLUT4 knock-out mice. *J Biol Chem*. 2010;285(47):36395-400. doi:10.1074/jbc.M110.176321 PMCID:PMC2978568 PMID:20864532

26. Gazit V, Weymann A, Hartman E, Finck BN, Hruz PW, Tzekov A, Rudnick DA. Liver regeneration is impaired in lipodystrophic fatty liver dystrophy mice. *Hepatology*. 2010;52(6):2109-17. doi:10.1002/hep.23920 PMCID:PMC2991544 PMID:20967828
27. Hresko RC, Hruz PW. HIV protease inhibitors act as competitive inhibitors of the cytoplasmic glucose binding site of GLUTs with differing affinities for GLUT1 and GLUT4. *PLoS One*. 2011;6(9):e25237. doi:10.1371/journal.pone.0025237 PMCID:PMC3179492 PMID:21966466
28. Vyas AK, Yang KC, Woo D, Tzekov A, Kovacs A, Jay PY, Hruz PW. Exenatide improves glucose homeostasis and prolongs survival in a murine model of dilated cardiomyopathy. *PLoS One*. 2011;6(2):e17178. doi:10.1371/journal.pone.0017178 PMCID:PMC3040766 PMID:21359201
29. Hruz PW, Yan Q, Tsai L, Koster J, Xu L, Cihlar T, Callebaut C. GS-8374, a novel HIV protease inhibitor, does not alter glucose homeostasis in cultured adipocytes or in a healthy-rodent model system. *Antimicrob Agents Chemother*. 2011;55(4):1377-82. doi:10.1128/AAC.01184-10 PMCID:PMC3067185 PMID:21245443
30. Remedi MS, Agapova SE, Vyas AK, Hruz PW, Nichols CG. Acute sulfonylurea therapy at disease onset can cause permanent remission of KATP-induced diabetes. *Diabetes*. 2011;60(10):2515-22. doi:10.2337/db11-0538 PMCID:PMC3178299 PMID:21813803
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32. Vyas AK, Aerni-Flessner LB, Payne MA, Kovacs A, Jay PY, Hruz PW. Saxagliptin Improves Glucose Tolerance but not Survival in a Murine Model of Dilated Cardiomyopathy. *Cardiovasc Endocrinol*. 2012;1(4):74-82. doi:10.1097/XCE.0b013e32835bfb24 PMCID:PMC3686315 PMID:23795310
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39. Kraft TE, Heitmeier MR, Putanko M, Edwards RL, Ilagan MX, Payne MA, Autry JM, Thomas DD, Odom AR, Hruz PW. A Novel Fluorescence Resonance Energy Transfer-Based Screen in High-Throughput Format To Identify Inhibitors of Malarial and Human Glucose Transporters. *Antimicrob Agents Chemother*. 2016;60(12):7407-7414. PMCID:PMC5119023 PMID:27736766

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43. Wei C, Heitmeier M, Hruz PW, Shanmugam M. Evaluating the Efficacy of GLUT Inhibitors Using a Seahorse Extracellular Flux Analyzer. *Methods Mol Biol*. 2018;1713:69-75. PMID:29218518
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47. Heitmeier MR, Hresko RC, Edwards RL, Prinsen MJ, Ilagan MXG, Odom John AR, Hruz PW. Identification of druggable small molecule antagonists of the Plasmodium falciparum hexose transporter PfHT and assessment of ligand access to the glucose permeation pathway via FLAG-mediated protein engineering. *PLoS One*. 2019;14(5):e0216457. PMCID:PMC6508677 PMID:31071153
48. Hruz PW. Deficiencies in Scientific Evidence for Medical Management of Gender Dysphoria. *Linacre Q*. 2020;87(1):34-42. PMCID:PMC7016442 PMID:32431446
49. Zhang Y, Shaikh N, Ferey JL, Wankhade UD, Chintapalli SV, Higgins CB, Crowley JR, Heitmeier MR, Stothard AI, Mihi B, Good M, Higashiyama T, Swarts BM, Hruz PW, Shankar K, Tarr PI, DeBosch BJ. Lactotrehalose, an Analog of Trehalose, Increases Energy Metabolism Without Promoting Clostridioides difficile Infection in Mice. *Gastroenterology*. 2020;158(5):1402-1416.e2. PMCID:PMC7103499 PMID:31838076
50. Malone WJ, Hruz PW, Mason JW, Beck S. Letter to the Editor from William J. Malone: "Proper Care of Transgender and Gender Diverse Persons in the Setting of Proposed Discrimination: A Policy Perspective". *J Clin Endocrinol Metab*. 2021. PMID:33772300

C2. Chapters

1. Henderson KE, Baranski TJ, Bickel PE, Clutter PE, Clutter WE, McGill JB. Endocrine Disorders in HIV/AIDS. In: *The Washington Manual Endocrinology Subspecialty Consult* Philadelphia, PA; 2008:321-328.
2. Paul W Hruz. Medical Approaches to Alleviating Gender Dysphoria In: Edward J Furton, eds. *Transgender Issues in Catholic Health Care* Philadelphia PA; 2021:1-42.

C4. Invited Publications

1. Grunfeld C, Kotler DP, Arnett DK, Falutz JM, Haffner SM, Hruz P, Masur H, Meigs JB, Mulligan K, Reiss P, Samaras K, Working Group 1. Contribution of metabolic and anthropometric abnormalities to cardiovascular disease risk factors. *Circulation*. 2008;118(2):e20-8. PMCID: PMC3170411 PMID: 18566314
2. Hruz PW. HIV protease inhibitors and insulin resistance: lessons from in-vitro, rodent and healthy human volunteer models. *Curr Opin HIV AIDS*. 2008;3(6):660-5. PMCID: PMC2680222 PMID: 19373039
3. Hruz PW. Molecular mechanisms for insulin resistance in treated HIV-infection. *Best Pract Res Clin Endocrinol Metab*. 2011;25(3):459-68. PMCID: PMC3115529 PMID: 21663839
4. Hruz PW. HIV and endocrine disorders. *Endocrinol Metab Clin North Am*. 2014;43(3): xvii–xviii. PMID: 25169571
5. Hruz PW. Commentary. *Clin Chem*. 2015;61(12):1444. PMID: 26614228
6. Hruz PW, Mayer LS, and McHugh PR. Growing Pains: Problems with Pubertal Suppression in Treating Gender Dysphoria *The New Atlantis*. 2017;52:3-36.
7. Hruz, PW. The Use of Cross-Sex Steroids in Treating Gender Dysphoria *Natl Cathol Bioeth Q*. 2018;17(4):1-11.
8. Hruz, PW. Experimental Approaches to Alleviating Gender Dysphoria in Children *Nat Cathol Bioeth Q*. 2019;19(1):89-104.

Clinician Educator Portfolio

CLINICAL CONTRIBUTIONS

Summaries of ongoing clinical activities

	General Pediatrician, General Pediatric Ward Attending: 2-4 weeks per year, St. Louis Children's Hospital
2000 - Pres	Pediatric Endocrinologist, Endocrinology Night Telephone Consult Service: Average of 2-6 weeks/per yr, St. Louis Children's Hosptial
2000 - Pres	Pediatric Endocrinologist, Inpatient Endocrinology Consult Service: 3-6 weeks per year, St. Louis Children's Hospital
2000 - Pres	Pediatric Endocrinologist, Outpatient Endocrinology Clinic: Approximately 50 patient visits per month, St. Louis Children's Hospital

EDUCATIONAL CONTRIBUTIONS

Direct teaching

Classroom

2009 - Pres	Lecturer, Markey Course-Diabetes Module
2020 - 2020	Facilitator, Reading Elective-Interdisciplinary/Miscellaneous Course #M80-800, Washington University School of Medicine

Clinical

2000 - Pres	Lecturer, Medical Student Growth Lecture (Women and Children's Health Rotation): Variable
2000 - Pres	Lecturer, Pediatric Endocrinology Journal Club: Presentations yearly
2009 - Pres	Facilitator, Medical Student Endocrinology and Metabolism Course, Small group
2016 - Pres	Facilitator, Medical Student Endocrinology and Metabolism Course, Small group

Other

	Facilitator, Cell Biology Graduate Student Journal Club, 4 hour/year
	Facilitator, Discussion: Pituitary, Growth & Gonadal Cases, 2 hours/year
2000 - Pres	Lecturer, Metabolism Clinical Rounds/Research Seminar: Presentations twice yearly
2009 - Pres	Facilitator, Biology 5011- Ethics and Research Science, 6 hours/year
2016 - Pres	Lecturer, Cell Signaling Course, Diabetes module, 3 hours/year

ANNUAL SUMMARIES

OTHER

Participated in research studies

Pres	Development of Novel Small Molecule Hexose Transport Inhibitors for Glucose-Dependent Disesases Paul W Hruz.

DOC. 69-6

DEFENDANT'S EXHIBIT 6

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER, *et al.*,	)	
Plaintiffs,	)	
v.	)	No. 2:22-cv-00184-LCB-SRW
KAY IVEY, in her official capacity as Governor of the State of Alabama, *et al.*,	)	
Defendants.	)	

DECLARATION OF PATRICK HUNTER

My name is Patrick Hunter MD. I am over the age of 19, I am qualified to give this declaration, and, I have personal knowledge of the matters set forth herein. My CV is attached to this declaration.

In the past four years, I have not provided expert testimony in any case.

I am compensated the rate of $ 450 per hour for my work on this matter. My compensation is not dependent upon the substance of my opinions or the outcome of the case.

1. I submit this expert declaration based upon my personal knowledge, my experience as a pediatrician with an advanced degree in bioethics, and my review of the literature discussed below.
2. If called to testify in this matter, I would testify truthfully based on my expert opinion.

I. Qualifications and Experience

3. I am a pediatrician with a master's degree in bioethics. I received my medical degree from the University of Louisville School of Medicine in 1992 and completed a pediatric residency at Tripler Army Medical Center in 1995. I obtained board certification in general pediatrics in 1995 and have continuously maintained that certification. I obtained a Master of Science degree in bioethics from the University of Mary in 2020. I have served on the ethics committee at Nemours Children Hospital, Orlando.
4. At Scotland Memorial Hospital, I served as pediatric department chair, medical executive committee chair, chief of the medical staff, and on the physician effectiveness committee. This physician effectiveness committee addressed physician professionalism and ethics. I also served on this hospital's governing board and operating committee.
5. I have held teaching positions at the rank of clinical and associate professors at the University of Hawaii and the Uniformed Services University of the Health Sciences. I currently hold academic positions at the University of Central Florida and Florida State University. I have taught pediatrics and bioethics to medical students and resident physicians at Tripler Army Medical Center, the University of Central Florida, and Nemours Children's Hospital in Orlando, Florida.
6. My path into the field of gender medicine is unique. For my first 20 plus years in practice, young people with transgender identity were an extremely rare phenomenon. While gay,

lesbian, and gender non-conforming patients were not uncommon, none of the patients in my care were declaring a transgender identity.

7. However, in 2015, I began to see young patients, exclusively adolescent females, who asserted that they were transgender. I was surprised that the cases I was seeing had "come out" around and after puberty. This sudden epidemiological change did not agree with what I had learned.

8. Historically, gender identity disorder and gender dysphoria affected primarily pre-pubescent boys. These young boys were adamant about their female identity. Gender dysphoria was obvious to the family, and had begun at a young age (approximately 3-5 year old), long before children are developmentally capable of hiding facts from their parents. This presentation of cross-sex identification has been described in the literature as "persistent, insistent and consistent." The rare cases of such young boys (and on an even rarer occasion, girls) did not have to "come out."

9. I now know that my experience with seeing this unusual cohort of adolescents with no history of "persistent, insistent and consistent" cross-sex identity in early childhood closely mirrors the trends seen by other clinicians. In the last eight years there has been an unexplained, dramatic rise in adolescents declaring distress with their sexed bodies and seeking hormones and surgeries to stop the development of secondary sex characteristics.

10. These puzzling epidemiological shifts made me eager to learn what is known about pediatric gender transition. This has involved reading hundreds of papers in this field that have encompassed research, practice guidelines, epidemiology, opinions, history, and ethics. This reading has been from journals that include the NEJM, JAMA, Pediatrics, British Medical Journal, Lancet, Archives of Sexual Behavior, Journal of Homosexuality, Sexual Medicine,

the Journal of American Academy of Child and Adolescent Psychiatry, American Psychologist, PLOS ONE, the Journal of Clinical Endocrinology and Metabolism, and many others. I have also studied professional guidelines from Finland, Sweden, Australia, New Zealand, England, France, and The Netherlands.

11. Importantly, I have also read the first-person accounts of patients in the lay literature, where patient stories and professional concerns are increasingly being voiced. It is my opinion that concerns regarding the so-called "gender-affirmative care model" are often barred from the medical literature.

12. My comprehensive review of the literature revealed that public health authorities in a number of progressive European countries have conducted independent evaluations of the evidence. They have found the evidence for youth transition to be lacking, any benefits to be of very low certainty, and the harms significant.

13. The risks of "gender-affirmative care" in youth are real and the harms are considerable. The most self-evident risk is that the treatment frequently leads to infertility. In fact, if the Endocrine Society's treatment recommendations for youth are followed, and puberty blockers are followed by cross-sex hormones, sterility is nearly assured. Other risks are less certain, but alarming evidence is emerging that bone health is adversely affected. A growing list of concerns includes the effect on developing brains, cardiovascular complications of cross-sex hormones, increased risk for cancer, and others. Arguably the greatest harms are regret and detransition after irreversible bodily changes, sterilization, and impairment of sexual function that is wrought by hormones and surgery.

14. The unfavorable risk/benefit ratio of pediatric transition is the reason why a growing number of liberal western countries are now sharply scaling back the practice of pediatric gender transition.

15. I have always had a keen interest in medical ethics and often considered formal education in the field. I originally wanted to explore the merging of medicine and business—hospital systems dominating the marketplace and physicians becoming employees—and how this evolution was impacting the ethics of medical care. What I was learning about gender dysphoria further propelled my interest in an ethics degree. I undertook a study of bioethics, completing my master's degree in bioethics in 2020.

16. In my degree, much effort was focused on the growing popularity of the so-called "gender-affirmative care," which delivers life-altering, permanent interventions to minors that involve sterilizing procedures. I have focused on ethical dilemmas, such as whether minors have the capacity to give a meaningful informed consent.

17. My research has given me the opportunity to work with experts in the field of gender medicine from all over the world, including Sweden, Finland, England, Australia, Canada, and the United States. I have lectured with Dr. Rittakerttu Kaltiala, a child and adolescent psychiatrist and a leading world expert in transgender care for youth. Dr. Kaltiala was instrumental in recently changing Finland's national transgender practice guidelines, when they recognized the harms being done to youth. I have also lectured on this topic to The National Academy of Science in France. I am a member of the group's scientific council. Recently, my letter outlining concerns with the practice of pediatric gender transition was

published by JAMA Pediatrics. [1] I have authored several recent manuscripts that are currently under review.

18. To round out my academic grasp of the ethical issues, I have also engaged with individuals who transitioned as youth. Some have detransitioned. Some have remained transitioned. I have learned a lot from these brave patients who have been the trailblazers in the highly experimental field of pediatric gender transition.

19. I approach gender dysphoria, gender medicine, and transgender patients from both the clinical and the ethical perspectives. First and foremost, clinical care for patients that suffer from gender dysphoria must offer the greatest benefits. Care must aim for optimal psychological, physical, sexual, and reproductive well-being. Benefits must exceed harms. The well-respected medical truism must prevail: First, do no harm.

20. I will devote part of this declaration to the profound ethical concerns that all physicians should have when treating children with gender dysphoria with medical interventions. It is my conclusion as a bioethicist that the practice of prescribing puberty blockers, cross-sex-hormones, and surgeries to minors violates every key principle of biomedical ethics.

21. Based on numerous conversations and interactions with other pediatricians, it is my opinion that many share my concerns about the unusually high numbers of adolescents requesting gender reassignment and the "gender-affirming care" they are given. Many providers are concerned about the irreversible, profound, life-long changes that these poorly evidenced interventions entail. However, in our current climate, where political activism has taken over

[1] Hunter PK. Political Issues Surrounding Gender-Affirming Care for Transgender Youth. *JAMA Pediatr*. Published online December 20, 2021. doi:10.1001/jamapediatrics.2021.5348

the medical profession, my colleagues are too afraid to speak out publicly. They fear being accused of "transphobia," or fear losing their employment.

22. Gender-dysphoric youth are suffering, and they deserve our compassion and care. The question is not *whether to treat them*, but rather, *how to treat them* in a way that promotes their long-term health and well-being. It is my strong opinion, supported by a growing number of leading pediatric gender clinics and public health authorities in the western world, that hormonal and surgical interventions should be reserved for mature adults, while minors should be treated with supportive psychological care.

23. This is because many minors will find that their trans identity is a transient phase in their identity formation—a realization that is increasingly common among previously trans-identified youth. There is a growing visibility of detransitioned young adults. They regret that they were allowed to get the interventions they so disparately desired at the time, but now realize these interventions were a mistake. Those who persist in their transgender identity can undergo interventions as adults and can be highly successful in their transition. We have many visible examples of successful transitioned adults.

24. One symbol of the medical profession is Asclepias's Rod, with a single snake wrapped around the rod. The rod is the walking stick that the physician uses to travel from home to home to care for those in need. The snake as a reminder, to both physician and patient, that the physician has the power to both heal and to harm.[2]

25. Below, I outline my position that "gender-affirmative" hormonal and surgical interventions for minors on the balance do more harm than good, and that these interventions should be

[2] Cavanaugh TA. *Hippocrates' Oath and Asclepius' Snake*. Vol 1. Oxford University Press; 2017. doi:10.1093/med/9780190673673.001.0001

delayed until a young person's identity is stabilized, full maturity is reached, and true informed consent is attainable.

II. Summary of Key Positions

Below is a summary of my key opinions. I will expand on these opinions further.

- Gender identity is not biologically predetermined
- Transgender identity in young people typically resolves
- The original research on which the practice of pediatric transition rests no longer applies to the currently presenting cases
- There is no established standard of care for transgender-identified youth
- "Gender-affirming" interventions for youth cannot be ethically justified

III. Key Positions

A. Gender Identity is not biologically predetermined

26. Proponents of treating young people with "gender-affirming" hormones and surgeries assert that gender identity is biologically predetermined and, therefore, immutable. They argue that gender-dysphoric adolescents were born "transgender" and will always be "transgender"—much like children born with a congenital disorder such as a cleft palate. Thus, they argue that it is cruel and nonsensical to delay physical alterations to the bodies needed to make their future lives easier.

27. If one is to believe gender identity is biologically predetermined and immutable, and children presenting with gender dysphoria are simply "transgender children" who were born with a

brain-body mismatch, a person holding such beliefs would reason that medical doctors should try to intervene as early as possible to "fix" the body. This is exactly the rationale that the expert witnesses for the plaintiffs in this case are presenting.

28. However, these claims are patently untrue. Despite decades of trying to prove that gender identity is biologically predetermined, the body of evidence points to something entirely different: that biology is far from deterministic, and that a transgender identity arises instead in response to is a combination of factors.

29. Below I present some of the arguments that demonstrate decisively that "gender identity" is not biologically predetermined.

i. Brain studies have not been able to demonstrate a "transgender brain"

30. Despite a number of brain studies that attempted to demonstrate that there is a distinctive brain structure that differentiates people with a transgender identity from the rest, no study has been able to demonstrate a pattern or structure unique to the "transgender brain." The few differences that have been noted disappear after researchers control for sexual orientation and exposure to hormonal interventions that gender dysphoric people undergo, or the studies are too small or unable to control for these or other known confounding factors. Brain

researchers clearly state that their findings do not justify statements suggesting gender dysphoria is a biological condition. [3, 4, 5, 6]

ii. Identical twin studies challenge the notion that gender identity is biologically predetermined

31. Identical twin studies represent one the best available methods to test biological determinism. If gender identity were to be predetermined by one's biology whereby certain children are simply born with a "transgender brain," we would expect both identical twins to have a concordant gender identity majority of the time. Instead, the research into pairs of identical twins shows that if one of the identical twins has a transgender identity the chance that the other twin is also transgender identified is less than 30%.[7]

32. It should be noted that a 30% transgender identity concordance found in identical twins is much higher than would occur by chance, which raises the possibility of biological influence for the formation of a transgender identity, alongside other possibilities. However, the 70% discordance in identical twins' transgender identity strongly signals that a transgender identity is not predetermined by one's genes or prenatal factors.

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[3] Mueller SC, De Cuypere G, T'Sjoen G. Transgender Research in the 21st Century: A Selective Critical Review From a Neurocognitive Perspective. *AJP*. 2017;174(12):1155-1162. doi:10.1176/appi.ajp.2017.17060626

[4] Frigerio A, Ballerini L, Valdés Hernández M. Structural, Functional, and Metabolic Brain Differences as a Function of Gender Identity or Sexual Orientation: A Systematic Review of the Human Neuroimaging Literature. *Arch Sex Behav*. 2021;50(8):3329-3352. doi:10.1007/s10508-021-02005-9

[5] Mueller SC, Guillamon A, Zubiaurre-Elorza L, et al. The Neuroanatomy of Transgender Identity: Mega-Analytic Findings From the ENIGMA Transgender Persons Working Group. *The Journal of Sexual Medicine*. 2021;18(6):1122-1129. doi:10.1016/j.jsxm.2021.03.079

[6] Mueller SC, Guillamon A, Zubiaurre-Elorza L, et al. The Neuroanatomy of Transgender Identity: Mega-Analytic Findings From the ENIGMA Transgender Persons Working Group. *The Journal of Sexual Medicine*. 2021;18(6):1122-1129. doi:10.1016/j.jsxm.2021.03.079

[7] Diamond M. Transsexuality Among Twins: Identity Concordance, Transition, Rearing, and Orientation. *International Journal of Transgenderism*. 2013;14(1):24-38. doi:10.1080/15532739.2013.750222

iii. Peer-reviewed publications acknowledge that transgender identity arises in response to a complex interplay of multiple factors

33. The fact that transgender identity emerges due to the interplay of a multitude of factors, rather than having a biological cause, is widely recognized. In fact, Dr. Rosenthal, one of the expert witnesses for the plaintiffs acknowledged this in his 2014 study:[8]

> *... studies have demonstrated that "gender identity"—a person's inner sense of self as male, female, or occasionally a category other than male or female—...likely reflects a complex interplay of biological, environmental, and cultural factors."* (*Rosenthal, 2014, p. 4379*)

iv. The "gender identity" theory has never been properly tested

34. While it is evident that some people have a transgender identity, and "gender dysphoria" is a diagnosable DSM-5 psychological disorder, what "gender identity" is more generally, and whether and how it varies from one's awareness of one's sex for the rest of the population, is yet to be elucidated. The claims that "everyone has a gender identity," and that one's gender identity is a different entity than one's awareness of one's own sex, have never been put to test.

35. It is worth noting that the very concept of a "gender identity" is relatively new, popularized by the psychologist Dr. John Money in the 1960's. Dr. Money's theories about gender identity developed as he experimented on identical twin boys, one of whom was being raised

[8] Rosenthal SM. Approach to the Patient: Transgender Youth: Endocrine Considerations. *The Journal of Clinical Endocrinology & Metabolism*. 2014;99(12):4379-4389. doi:10.1210/jc.2014-1919

as a girl at Dr. Money's advice. Dr. Money made this recommendation following a circumcision accident that left the boy without a penis. To help the twin raised as a girl embrace his female gender role, Dr. Money performed highly unethical experiments on the boys, including making the siblings examine each other's genitals and perform simulated sexual acts with one another.

36. Initially, the twin boy raised as a girl appeared to have embraced the female identity, which Dr. Money took as validation of his gender identity theory. However, the twin raised in the female gender role eventually re-identified with his biological sex. Tragically, both twins died young, one from a suicide, and the other from a drug overdose. [9] The parents of the twins blamed Dr. Money's experiments as contributing to their sons' mental health struggles and premature death.

37. The proponents of "gender-affirming" hormonal and surgical interventions for minors claim that Dr. Money's experiments proved that gender identity is biologically predetermined and immutable (since the child raised as a girl eventually identified as a boy, despite the psychologist's efforts to the contrary). However, few conclusions can be drawn from a single case that involved such unusual circumstances.

38. More than anything, this experiment demonstrates the problematic origins of the gender identity theory and highlights the profound ethical problems with the currently ongoing social, medical, and surgical experimentation on minors in an attempt to deny or obfuscate their sex.

[9] John Colapinto., 2013. *As nature made him: the boy who was raised as a girl*. HarperCollins Publishers.

B. Transgender identity in young people typically resolves

39. During childhood, adolescence, and young adulthood, an individual's identity continues to develop and change. Historical data shows that most cases of a cross-sex identity in children resolve before they reach mature adulthood. Research confirms that the majority of such youth grow up to be gay, lesbian, or bisexual adults. In fact, a period of cross-sex identification in childhood is a common developmental pathway of gay adults.[10, 11]

40. Contrary to the assertions of the proponents of "gender affirmation," the tendency of a cross-sex identity to resolve is not coerced, but rather happens through the natural course of undergoing puberty and reaching maturity. While the mechanism by which this change occurs is not exactly known, it has been observed that experiencing romantic and sexual encounters and undergoing physical changes of puberty play a key role. [12,13]

41. In talking about the permanent vs. transient nature of transgender identity, is important to differentiate between two known variants of gender dysphoria in young people: the "classical" presentation where gender dysphoria begins in early childhood (typically between ages 3-5), and the novel and now-predominant variant where older children "come out" as transgender around or after the onset of puberty.

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[10] *See* Cantor, 2020

[11] Korte A, Goecker D, Krude H, Lehmkuhl U, Grüters-Kieslich A, Beier KM. Gender Identity Disorders in Childhood and Adolescence. *Dtsch Arztebl Int*. 2008;105(48):834-841. doi:10.3238/arztebl.2008.0834

[12] Steensma TD, Biemond R, de Boer F, Cohen-Kettenis PT. Desisting and persisting gender dysphoria after childhood: A qualitative follow-up study. *Clin Child Psychol Psychiatry*. 2011;16(4):499-516. doi:10.1177/1359104510378303

[13] Kaltiala-Heino R, Bergman H, Työläjärvi M, Frisen L. Gender dysphoria in adolescence: current perspectives. *AHMT*. 2018;Volume 9:31-41. doi:10.2147/AHMT.S135432

i. Childhood-onset gender dysphoria typically remits naturally

42. To date, the total of 11 studies have been conducted to determine the trajectories of children with early-childhood onset of gender dysphoria. All 11 demonstrated that for a majority of such children (61%-98%), early childhood-onset gender dysphoria resolves without any interventions by late adolescence or young adulthood. [14, 15,16]

43. Proponents of pediatric "gender-affirmation" reject this proven high rate of desistance. The fact that desistence happens so frequently in gender-dysphoric children is a threat to the premise of pediatric gender transition. In fact, the expert witnesses for the plaintiffs go to great lengths to preemptively discredit the statistic.

44. For example, Dr. Hawkins attempts to discredit the overwhelming evidence that pediatric gender dysphoria typically self-resolves by claiming that the prior studies dealt with merely gender-non-conforming "non-transgender children," rather than "true transgender children." Hawkins says, "*Historically, earlier studies included a wide range of gender nonconforming children, rather than differentiating between transgender and non-transgender children, and also suffered from other serious methodological flaws that make them unreliable."* (Hawkins, para 22)

45. This claim is not credible at face value. The studies in question have been authored by the very same researchers who are their countries' respective leaders in pediatric gender

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[14] Cantor JM. Transgender and Gender Diverse Children and Adolescents: Fact-Checking of AAP Policy. *Journal of Sex & Marital Therapy*. 2020;46(4):307-313. doi:10.1080/0092623X.2019.1698481

[15] Ristori J, Steensma TD. Gender dysphoria in childhood. *International Review of Psychiatry*. 2016;28(1):13-20. doi:10.3109/09540261.2015.1115754

[16] Singh D, Bradley SJ, Zucker KJ. A Follow-Up Study of Boys With Gender Identity Disorder. *Front Psychiatry*. 2021;12. doi:10.3389/fpsyt.2021.632784

transition. These are the very same authors who have produced much of the currently available literature upon which the entire field of pediatric gender transition rests. To suggest that these clinicians and researchers were somehow confused about their own study subjects, and accidentally studied children who were merely "tomboy girls" or "feminine boys," rather than children with significant gender identity issues, is to imply that the entire body of evidence in the field of pediatric gender medicine came from highly confused clinicians and researchers.

46. Hawken's argument is not original—the proponents of pediatric gender transition have been making it for some time. In response to their critique, a prominent researcher in the field of pediatric gender medicine, Dr. Ken Zucker, re-analyzed the studies in question and split the study subjects into two cohorts: those who were extremely gender non-conforming but did not meet the full diagnostic criteria for Gender Identity Disorder (which was the name of the respective DSM diagnosis at the time), and those who actually met the full diagnostic criteria for having Gender Identity Disorder.

47. The reanalysis confirmed the original finding that most children diagnosed with a gender issue per DSM—nearly 7 in 10—naturally stopped identifying as transgender by the time they reached adulthood. The rate of natural resolution for gender dysphoria is even higher, more than 9 in 10, for those who gender distress was significant enough to warrant a consult with a pediatric gender clinic, but not enough to meet the full diagnostic DSM criteria. [17]

[17] Zucker KJ. The myth of persistence: Response to "A critical commentary on follow-up studies and 'desistance' theories about transgender and gender non-conforming children" by Temple Newhook et al. (2018). *International Journal of Transgenderism*. 2018;19(2):231-245. doi:10.1080/15532739.2018.1468293

48. Yet another way that pro-transition activists have tried to discredit the well-established fact that childhood gender dysphoria eventually remits, is by claiming that DSM-IV criteria used at the time were so flawed as to be totally invalid. These claims assert that even those properly diagnosed with "Gender Identity Disorder" in DSM-IV were not "transgender" at all, but were merely gender-non-conforming.

49. While it is true that the updated DSM-5 criteria in use today made some changes to the childhood diagnosis, these changes have proven to be minor and not clinically significant. Both of the diagnostic manuals (the prior DSM-IV and the current DSM-5) were recently field-tested and were found to be equivalent in terms of which children they flagged as meeting the diagnostic criteria: [18]

> "…*both editions (DSM-IV and DSM-5 and ICD-10 and ICD-11) of gender identity-related diagnoses seem reliable and convenient for clinical use."*

50. The Chair of the DSM-5 Work Group for Sexual and Gender Identity Disorders also concurs that the change in the diagnostic criteria for children from DSM-IV to DSM-5 was not significant: [19]

> *"It is my clinical opinion that the similarities across the various iterations of the DSM are far greater than the differences (Zucker, 2010) and, as part of the work done by the Subcommittee on Gender Identity Disorders for the DSM-IV, provided one example of this (Zucker et al., 1998)*

[18] de Vries ALC, Beek TF, Dhondt K, et al. Reliability and Clinical Utility of Gender Identity-Related Diagnoses: Comparisons Between the ICD-11, ICD-10, DSM-IV, and DSM-5. *LGBT Health*. 2021;8(2):133-142. P.1 doi:10.1089/lgbt.2020.0272

[19] Zucker KJ. The myth of persistence: Response to "A critical commentary on follow-up studies and 'desistance' theories about transgender and gender non-conforming children" by Temple Newhook et al. (2018). *International Journal of Transgenderism*. 2018;19(2):231-245. doi:10.1080/15532739.2018.1468293

51. Thus, the argument that the high desistance rates of pediatric gender dysphoria recorded in all the studies to date were due to the mistaken inclusion of merely gender-non-conforming, rather than "truly transgender" children, does not hold up. It is undeniable that most gender dysphoric children will not grow up to be transgender identified adults, as long as they are allowed to naturally develop without undergoing social and medical transition.

52. Further, contrary to the unfounded plaintiff expert witnesses' claims, no clinician can accurately predict which of the trans-identified children will continue to identify as transgender in mature adulthood vs. those that will desist. This is recognized by the seminal study evaluating the development trajectories of gender-distressed children.[20]

> *"When considering the development of children with GD [gender dysphoria]; studies show that gender dysphoric feelings eventually desist for the majority of children with GD, and that their psychosexual outcome is strongly associated with a lesbian, gay, or bisexual sexuality which does not require any medical intervention, instead of an outcome where medical intervention is required (e.g. Drummond et al., 2008; Wallien & Cohen-Kettenis, 2008; Singh, 2012). Factors predictive for the persistence of GD have been identified on a group level, with higher intensity of GD in childhood identified as the strongest predictor for a future gender dysphoric outcome (Steensma et al., 2013).* ***The predictive value of the identified factors for persistence are, however, on an individual level less clear cut, and the clinical utility of currently identified factors is low****" (Ristori and Steensma, 2016, p. 6)*

[20] Ristori J, Steensma TD. Gender dysphoria in childhood. *International Review of Psychiatry*. 2016;28(1):13-20. doi:10.3109/09540261.2015.1115754

53. This very inability to predict who will persist vs. desist raises serious ethical questions regarding the provision of any irreversible procedures, and particularly those that result in sterilization.

54. The common claim by medicalization activists that once a gender-dysphoric minor reaches adolescence, their gender identity is fixed, is not supported by the evidence. In the 11 desistance studies, the age at which the subjects were followed ranged from adolescence into young adulthood. Some desisted in puberty and others in young adulthood. The Endocrine Society's treatment guidelines acknowledge this:[21]

> *"With current knowledge, we cannot predict the psychosexual outcome for any specific child. Prospective follow-up studies show that childhood GD/gender incongruence does not invariably persist into adolescence* ***and adulthood*** *(so-called "desisters"). (Hembree et al., 2017, p. 3876)*

ii. Transgender identity in adolescents has an unknown developmental trajectory, but high rates of mutability are increasingly evident

55. It is now well recognized that a new variant of transgender identity emerged in the mid 2015's, represented by young people who were not cross-sex identified in childhood. Such cases were virtually unseen until about 7-10 years ago. This is the very population I, and many of my colleagues in the US and internationally, are now seeing in our practices. If one can develop a transgender identity for the first time in adolescence, it demonstrates that a transgender identity is not fixed.

[21] Hembree WC, Cohen-Kettenis PT, Gooren L, et al. ENDOCRINE TREATMENT OF GENDER-DYSPHORIC/GENDER-INCONGRUENT PERSONS: AN ENDOCRINE SOCIETY CLINICAL PRACTICE GUIDELINE. *Endocrine Practice*. 2017;23(12):1437-1437. doi:10.4158/1934-2403-23.12.1437

56. The UK has one of the biggest pediatric gender clinics in the world. The UK clinicians made this observation recently regarding adolescents declaring a trans identity without any childhood history: [22]

> *'...some of us have informally tended toward describing the phenomenon we witness as "adolescent-onset" gender dysphoria, that is,* ***without any notable symptom history prior to or during the early stages of puberty*** *(certainly nothing of clinical significance.)"*(Hutchinson et al., 2020, p. 1)

57. The lead researcher for the Finnish national pediatric gender services program, one of the most respected in the world, has stated the following: [23]

> *"In Finland most adolescents seeking medical treatment in order for their body to conform with their gender identity do not fulfil the eligibility criteria ... for example because they initially* ***experienced onset of gender dysphoria in the late stages of pubertal development*** *or suffer from severe mental disorders which predate the onset of gender dysphoria. Research on adolescent onset gender dysphoria is scarce, and optimal treatment options have not been established [12]. The reasons for the sudden increase in treatment-seeking due to* ***adolescent onset gender dysphoria*** */ transgender identification are not known [13]"* (Kaltiala-Heino and Lindberg, 2019, p. 62)

[22] Hutchinson A, Midgen M, Spiliadis A. In Support of Research Into Rapid-Onset Gender Dysphoria. *Arch Sex Behav*. 2020;49(1):79-80. p.1 doi:10.1007/s10508-019-01517-9

[23] Kaltiala-Heino R, Lindberg N. Gender identities in adolescent population: Methodological issues and prevalence across age groups. *Eur psychiatr*. 2019;55:61-66. p.62 doi:10.1016/j.eurpsy.2018.09.003

58. A leading Canadian pediatric gender expert made a similar observation: [24]

> *".. it is my view (and that of others) that a new subgroup of adolescents with gender dysphoria has appeared on the clinical scene. This subgroup appears to be comprised—at least so far—of a disproportionate percentage of birth-assigned females* ***who do not have a history of gender dysphoria in childhood or even evidence of marked gender-variant or gender nonconforming behavior****."* (Zucker, 2019, p. 4)

59. Last but not least, even the principal investigator of the medical protocol for transitioning minors (known as the Dutch Protocol) recently acknowledged that a fundamental shift has occurred where adolescents are "coming out" with a trans identity around puberty:[25]

> *"... gender identity development is diverse, and a new developmental pathway is proposed involving youth with postpuberty* ***adolescent-onset transgender histories****.6–8 These youth did not yet participate in the early evaluation studies.5,9" (de Vries, 2020, p. 1)*

[24] Zucker KJ. Adolescents with Gender Dysphoria: Reflections on Some Contemporary Clinical and Research Issues. *Arch Sex Behav*. 2019;48(7):1983-1992. doi:10.1007/s10508-019-01518-8

[25] de Vries ALC. Challenges in Timing Puberty Suppression for Gender-Nonconforming Adolescents. *Pediatrics*. 2020;146(4):e2020010611. doi:10.1542/peds.2020-010611

60. Finally, the growing visibility of young adult detransitioners confirms that a transgender identity can desist in young people. [26, 27, 28, 29]

61. A recent study from a UK adult gender clinic showed that over 10% of young people treated with gender-affirmative interventions detransitioned within 16 months of starting treatment. Another 22% of patients disengaged from the clinic without completing their treatment plan.[30]

62. Another clinic population study found that over 12% of those who had started hormonal treatments either detransitioned or documented regret, while 20% stopped the treatments for a wider range of reasons. These patients presented to the clinics as young adults (mean age of 20) and it took them on average 5 years from beginning treatment to stopping it. Notably, the UK researchers said this: [31]

> *"Thus, the detransition rate found in this population is novel and questions may be raised about the phenomenon of overdiagnosis, overtreatment, or iatrogenic harm as found in other medical fields." (Boyd et al., 2021, p.12)*

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[26] Entwistle K. Debate: Reality check – Detransitioner's testimonies require us to rethink gender dysphoria. *Child Adolesc Ment Health*. Published online May 14, 2020:camh.12380. doi:10.1111/camh.12380

[27] Littman L. Individuals Treated for Gender Dysphoria with Medical and/or Surgical Transition Who Subsequently Detransitioned: A Survey of 100 Detransitioners. *Arch Sex Behav*. Published online October 19, 2021. doi:10.1007/s10508-021-02163-w

[28] Levine SB, Abbruzzese E, Mason JM. Reconsidering Informed Consent for Trans-Identified Children, Adolescents, and Young Adults. *Journal of Sex & Marital Therapy*. Published online March 17, 2022:1-22. doi:10.1080/0092623X.2022.2046221

[29] Vandenbussche E. Detransition-Related Needs and Support: A Cross-Sectional Online Survey. *Journal of Homosexuality*. Published online April 30, 2021:20. doi:10.1080/00918369.2021.1919479

[30] Hall R, Mitchell L, Sachdeva J. Access to care and frequency of detransition among a cohort discharged by a UK national adult gender identity clinic: retrospective case-note review. *BJPsych open*. 2021;7(6):e184. doi:10.1192/bjo.2021.1022

[31] Boyd IL, Hackett T, Bewley S. Care of Transgender Patients: A General Practice Quality Improvement Approach. *SSRN Journal*. Published online 2021. p. 12 doi:10.3390/healthcare10010121

63. Further, we have direct evidence that adolescents with a transgender identity who desire to undergo medical interventions but are told to wait will likely desist. While the studies into this subject are scarce, in the early 2000's Dutch researchers (who pioneered the practice of pediatric gender transition) followed 14 adolescents who were rejected from hormonal and surgical interventions due to presenting with co-morbid mental health issues. [32]

64. At follow-up when the subjects were in their 20's, approximately 1-7 years after being rejected from medical transition as minors, the researchers discovered that 11 of 14 cases no longer wished to transition at all, two subjects only slightly regretted not being able to transition, and only one subject continued to strongly wish to transition. This single subject only wanted breast augmentation, but no other surgery in order to preserve sexual function.[33] Had that one individual been transitioned as a minor under the Dutch protocol, the loss of fertility and sexual function would have ensued.

65. Thus, all 14 of the 14 who were rejected from gender reassignment as teens benefitted from the intervention being delayed until they reached mature adulthood. These 14 young adults simultaneously prove three things: (i) Desistance frequently occurs. (ii) Desistence occurs even when gender dysphoria persists into adolescence. And (iii) a transgender identity is not immutable.

[32] Smith YLS, Van Goozen SHM, Cohen-Kettenis PT. Adolescents With Gender Identity Disorder Who Were Accepted or Rejected for Sex Reassignment Surgery: A Prospective Follow-up Study. *Journal of the American Academy of Child & Adolescent Psychiatry*. 2001;40(4):472-481. doi:10.1097/00004583-200104000-00017

[33] Malone W, D'Angelo R, Beck S, Mason J, Evans M. Puberty blockers for gender dysphoria: the science is far from settled. *The Lancet Child & Adolescent Health*. 2021;5(9):e33-e34. doi:10.1016/S2352-4642(21)00235-2

iii. The terms "transgender child" or "transgender adolescent" are poorly defined

66. Precisely because no clinician can reliably predict which young person will desist from their transgender identification vs. who will persist, the notion of a "transgender child/adolescent" extensively used by the plaintiff's witnesses is not a valid one.

67. "Transgender" is not a diagnosis found in any of the existing diagnostic classifications (either DSM or ICD). It's a lay term that has a wide range of definitions that vary depending on each person's unique understanding of this phenomenon.

68. I maintain that the use of the adjective "transgender" by the plaintiffs' expert witnesses, whenever they talk about gender-dysphoric youth, aims to create an emotional response, implies immutability not supported by evidence, and generally does not belong in a legal document dealing with medical interventions as it lacks a clinical definition. The proper terms in medical contexts are "gender-dysphoric" or "diagnosed with gender dysphoria," based on the diagnostic DSM-5 criteria that are currently in use in the United States.

C. The original research on which the practice of pediatric transition rests no longer applies to the currently presenting cases

i. The Protocol for gender-transitioning minors suffers from serious problems.

69. The practice of pediatric gender transition, known as "gender-affirmative care," rests on a single experiment from the Netherlands conducted circa 2010. This small, single-site, uncontrolled experiment showed that carefully selecting only the highest-functioning children with no mental health problems aside, from being cross-sex identified from early childhood on, and providing them with puberty blockers and cross-sex hormones upon reaching mid-adolescence, followed by surgeries after reaching the 18th birthday, allows

these children to continue to be high-functioning approximately 1.5 years after the completion of final surgery. [34,35]

70. However, the only attempt to replicate the Dutch experiment outside the Netherlands, in the world's largest gender clinic in the UK, failed to show any positive outcomes of the first phase of the Dutch protocol (puberty blockers).[36] The latter phases of the Dutch protocol (following puberty blockers with cross-sex hormones and surgery) have never been attempted to be replicated.

71. Further, new information came into light recently that suggests that the Dutch experiment was both misunderstood and misrepresented as providing "proof" that gender reassignment for minors leads to successful outcomes, when in fact, the study's conclusions are highly questionable. For example, while the Dutch researchers took credit for the adolescents' high level of functioning after transition, these adolescents were high functioning before transition due to the study's stringent participant selection criteria.

72. In fact, for half of the psychological measures tracked, there were no statistically significant improvements before vs. after the treatment protocol. The positive changes in the rest of the psychological measures were so small as to be of highly questionable clinical significance,

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[34] de Vries ALC, Steensma TD, Doreleijers TAH, Cohen-Kettenis PT. Puberty Suppression in Adolescents With Gender Identity Disorder: A Prospective Follow-Up Study. *The Journal of Sexual Medicine*. 2011;8(8):2276-2283. doi:10.1111/j.1743-6109.2010.01943.x

[35] de Vries ALC, McGuire JK, Steensma TD, Wagenaar ECF, Doreleijers TAH, Cohen-Kettenis PT. Young Adult Psychological Outcome After Puberty Suppression and Gender Reassignment. *Pediatrics*. 2014;134(4):696-704. doi:10.1542/peds.2013-2958

[36] Carmichael P, Butler G, Masic U, et al. Short-term outcomes of pubertal suppression in a selected cohort of 12 to 15 year old young people with persistent gender dysphoria in the UK. Santana GL, ed. *PLoS ONE*. 2021;16(2):e0243894. doi:10.1371/journal.pone.0243894

and could not be attributed to the hormones and surgeries alone since all the subjects also received extensive psychological support. [37]

73. More generally, the lack of a control group rendered the study findings "very low certainty," the rating assigned to the study by the recent comprehensive systematic review of evidence conducted by the UK's National Institute for Health and Care Excellence (NICE). [38]

74. Even the study's most-lauded finding, the marked drop in the "gender dysphoria" score, is now in question, as it has come to light that the researchers did not have an appropriate scale to capture changes in gender dysphoria, and they used the scale that they did have access to in a highly questionable way (by "flipping" the male and female versions of the scales between baseline and final measurement time periods).[39]

75. Further, the Dutch team had very strict screening criteria, which would have excluded the vast majority of young people who request gender reassignment today. For example, the Dutch excluded from their experiment any adolescent whose transgender identity emerged only around and after puberty—they required that clear cross-sex identification be present from very early childhood on. The Dutch also excluded the adolescents who were suicidal or had any significant unaddressed mental illness. Adolescents with a non-binary identity were not eligible. In addition, the Dutch researchers insisted that the adolescents have a firm grasp

[37] *See* Levine, 2020

[38] National Institute for Health and Care Excellence. Evidence review: Gonadotrophin releasing hormone analogues for children and adolescents with gender dysphoria. https://web.archive.org/web/20220414202655/https://arms.nice.org.uk/resources/hub/1070905/attachment

[39] *See* Levine, 2020

of biological reality and realize they will never be able to become the "opposite sex" despite the hormonal and surgical interventions. [40, 41]

76. Several children in the small sample of 70 cases (which, by the end of the study, shrank to 55) experienced severe adverse events while under treatment, including one young adult who died followed surgical complications, several cases of new diabetes and obesity, and at least one case of detransition, although the study is vague on this point.[42]

77. This study, and the modest psychological improvements reported, came at the cost of sterility for 100% of the subjects (mandatory removal of ovaries and testes was part of the protocol), and were associated with severe adverse, raising serious ethical concerns that I will address later on in more detail.

78. The concern that I would like to focus on here is that the presentation of gender dysphoria in youth has markedly changed since the Dutch protocol's final results were published in 2014. As a result, the continued application of this protocol to the populations for which it was never intended in the first place is not justified under any circumstances. This misapplication of the Dutch protocol directly contradicts the principle of evidence-based medicine.

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[40] Delemarre-van de Waal HA, Cohen-Kettenis PT. Clinical management of gender identity disorder in adolescents: a protocol on psychological and paediatric endocrinology aspects. *eur j endocrinol*. 2006;155(suppl_1):S131-S137. doi:10.1530/eje.1.02231

[41] Cohen-Kettenis PT, Delemarre-van de Waal HA, Gooren LJG. The treatment of adolescent transsexuals: changing insights. *J Sex Med*. 2008;5(8):1892-1897. doi:10.1111/j.1743-6109.2008.00870.x

[42] *See* de Vries et al., 2014

ii. The vast majority of currently presenting cases of gender dysphoric youth no longer meet the strict criteria of the Dutch protocol

79. Currently, approximately 2%-9% of minors in the US identify as transgender.[43,44] Most are adolescent females who "came out" as transgender around the time of puberty, and very often have significant mental health comorbidities that pre-date the onset of transgender identity. [45, 46, 47] Increasingly, these minors are identifying as "non-binary": neither male nor female, or both as male and female.[48] Recent research estimates that as many as 67% of trans-identified adolescents today identify as non-binary. [49]

80. The new clinical presentation and skyrocketing numbers are totally new phenomena. As recently as eight or ten years ago, seeing a child with a cross-gender identity was extremely rare, and most were prepubescent boys, the majority of whom outgrew their trans

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[43] Johns MM, Lowry R, Andrzejewski J, et al. Transgender Identity and Experiences of Violence Victimization, Substance Use, Suicide Risk, and Sexual Risk Behaviors Among High School Students - 19 States and Large Urban School Districts, 2017. *MMWR Morb Mortal Wkly Rep*. 2019;68(3):67-71. doi:10.15585/mmwr.mm6803a3

[44] Kidd KM, Sequeira GM, Douglas C, et al. Prevalence of Gender-Diverse Youth in an Urban School District. *Pediatrics*. 2021;147(6):e2020049823. doi:10.1542/peds.2020-049823

[45] Becerra-Culqui TA, Liu Y, Nash R, et al. Mental Health of Transgender and Gender Nonconforming Youth Compared With Their Peers. *Pediatrics*. 2018;141(5):e20173845. doi:10.1542/peds.2017-3845

[46] Kaltiala-Heino R, Sumia M, Työläjärvi M, Lindberg N. Two years of gender identity service for minors: overrepresentation of natal girls with severe problems in adolescent development. *Child Adolesc Psychiatry Ment Health*. 2015;9(1):9. doi:10.1186/s13034-015-0042-y

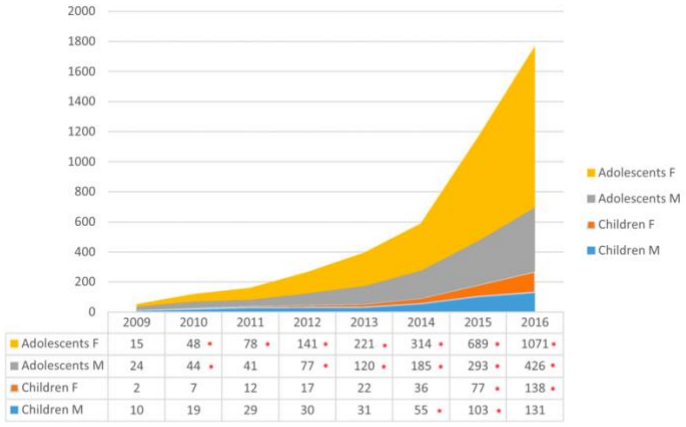
[47] Kaltiala-Heino R, Lindberg N. Gender identities in adolescent population: Methodological issues and prevalence across age groups. *Eur psychiatr*. 2019;55:61-66. doi:10.1016/j.eurpsy.2018.09.003

[48] Chew D, Tollit MA, Poulakis Z, Zwickl S, Cheung AS, Pang KC. Youths with a non-binary gender identity: a review of their sociodemographic and clinical profile. *The Lancet Child & Adolescent Health*. 2020;4(4):322-330. doi:10.1016/S2352-4642(19)30403-1

[49] Green AE, DeChants JP, Price MN, Davis CK. Association of Gender-Affirming Hormone Therapy With Depression, Thoughts of Suicide, and Attempted Suicide Among Transgender and Nonbinary Youth. *Journal of Adolescent Health*. Published online December 2021:S1054139X21005681. doi:10.1016/j.jadohealth.2021.10.036

identification sometime before mature adulthood. Many of these youths grew up to be gay. [50] [51]

81. The graph shown here from the Gender Identity Service in England is but one example of this worldwide phenomenon.[52]



	2009	2010	2011	2012	2013	2014	2015	2016
Adolescents F	15	48 *	78 *	141 *	221 *	314 *	689 *	1071 *
Adolescents M	24	44 *	41	77 *	120 *	185 *	293 *	426 *
Children F	2	7	12	17	22	36	77 *	138 *
Children M	10	19	29	30	31	55 *	103 *	131

AFAB = assigned female at birth; AMAB = assigned male at birth
* Indicates $p < .05$ which shows a significant increase of referrals compared to the previous year

82. In my own practice, I am also struck by the similarities in the patient stories of trans-identified youth. Most are adolescent females who have had a normative childhood from the gender standpoint, but have felt isolated from their peers. They have had pre-existing anxiety and depression. Several have had a history of psychiatric hospitalizations.

83. What is particularly striking is that that my patients arrive at my office well-versed in gender-related terminology. The trans-identified youth I see use terms that I did not expect to hear from late elementary, middle school, and high school students. Without prompting or questioning, I often hear about self-diagnoses of depression, anxiety, PTSD, autism, and

[50] *See* Cantor, 2020, Appendix

[51] *See* Korte, 2008

[52] de Graaf NM, Giovanardi G, Zitz C, Carmichael P. Sex Ratio in Children and Adolescents Referred to the Gender Identity Development Service in the UK (2009–2016). *Arch Sex Behav*. 2018;47(5):1301-1304. doi:10.1007/s10508-018-1204-9

dissociative disorders. Terms such as *puberty blockers*, *cross sex hormones*, *fully reversible*, *partially reversible, irreversible, suicidality*, *allyship*, *misgendering*, *minority stress*, and *transphobia* are often mentioned. The patient familiarity with terminology in this field is remarkable.

84. The advocates of medicalization may celebrate this as patient empowerment and patient education. To me this suggests a heavy influence from others. These youth self-diagnose and arrive in my office certain of their condition and the need for treatment, which is usually a request for hormones.

85. The emergence of a new clinical entity, and to an unprecedented scale, would normally give us pause. A pause to better understand what's causing the exponential rise in gender dysphoria and how best to understand it and address it. Several national health systems in progressive countries have indeed done this very thing. They include Finland, Sweden, and the UK, all of which have recently conducted systematic reviews of evidence and have begun to sharply limit pediatric transition over the concerns about this new trend.

86. Instead of a pause and critical analysis of the situation, as other countries are now doing, the US presses on, oblivious to these changes, and even actively suppressing concerns. The researcher who first raised the key question of why suddenly so many teenagers, and especially females with pre-existing mental health problems, are declaring a trans identity and seeking "gender-affirming" hormones, and hypothesized that peer pressure and social influence may be playing a key role, has been subject to intimidation, abuse, and silencing.[53]

87. It should also be noted that we are currently experiencing a well-recognized and new phenomenon of high numbers of children, particularly adolescent females, developing the

[53] https://quillette.com/2018/08/31/as-a-former-dean-of-harvard-medical-school-i-question-browns-failure-to-defend-lisa-littman/

sudden onset of tics that has been tied to social contagion via social networks.[54] Other well-researched socially-mediated psychological phenomena are eating disorders. It is known that bulimia and anorexia can spread through human social networks. These human social networks existed prior to the internet, can spread these conditions, and have disproportionately affected adolescent females. [55,56]

88. I am not asserting that adolescent-onset gender dysphoria spreads through social circles or is socially contagious—however this hypothesis and others need to be investigated. It is reasonable and prudent to ask why this is happening—as many as 1 in 10 youth currently claim a transgender identity —before a growing number of children are subjected to irreversible and highly experimental medical interventions. [57]

D. There is no established standard of care for transgender-identified youth

i. Current treatment guidelines do not represent a standard of care

89. Contrary to the plaintiffs' expert reports, there is currently no established standard of care for transgender-identified youth. Instead, multiple professional societies have come up with various treatment guidelines which are increasingly divergent in terms of how to approach the management of gender dysphoria in youth.

[54] https://ipmh.duke.edu/news/pediatric-presentation-tics-potential-role-tiktok
[55] Allison S, Warin M, Bastiampillai T. Anorexia nervosa and social contagion: Clinical implications. *Aust N Z J Psychiatry*. 2014;48(2):116-120. doi:10.1177/0004867413502092

[56] Forman-Hoffman VL, Cunningham CL. Geographical clustering of eating disordered behaviors in U.S. high school students. *Int J Eat Disord*. 2008;41(3):209-214. doi:10.1002/eat.20491

[57] Littman L. Parent reports of adolescents and young adults perceived to show signs of a rapid onset of gender dysphoria. Romer D, ed. *PLoS ONE*. 2018;13(8):e0202330. doi:10.1371/journal.pone.0202330

90. Unlike standards of care, which should be authoritative, unbiased consensus positions designed to produce optimal outcomes, practice guidelines are suggestions or recommendations. Depending on their sponsor, practice guidelines may be biased. [58]

91. The World Professional Association for Transgender Health (WPATH), an advocacy organization with a mission to remove barriers to insurance coverage for "gender-affirming" hormones and surgeries, is one of several organizations that authors guidelines in this space. Although WPATH named its guidelines "Standards of Care," it recently had to acknowledge that their recommendations are merely practice guidelines, rather than standards of care.[59]

92. The "Standards of Care 7" acknowledges that it was not evidence-based and did not utilize any systematic reviews of evidence, but rather was based on the emerging cultural changes and expert opinions of clinicians, many of whom derive a significant proportion of their income from delivering transgender medicine. A recent systematic review of treatment guidelines in this space found that "Standards of Care 7" were generally unfit for clinical decision-making, and it described several recommendations in the document as incoherent.[60]

93. The upcoming "Standards of Care 8" have not yet been finalized, but the draft version signals even more aggressive lowering of age of eligibility for hormonal and surgical interventions than that found in "Standards of Care 7," clearly signaling that the values and preferences of

[58] Malone WJ, Hruz PW, Mason JW, Beck S. Letter to the Editor from William J. Malone et al: "Proper Care of Transgender and Gender-diverse Persons in the Setting of Proposed Discrimination: A Policy Perspective." *The Journal of Clinical Endocrinology & Metabolism*. Published online March 27, 2021:dgab205. doi:10.1210/clinem/dgab205

[59] *See* Malone et al., 2021

[60] Dahlen S, Connolly D, Arif I, Junejo MH, Bewley S, Meads C. International clinical practice guidelines for gender minority/trans people: systematic review and quality assessment. *BMJ Open*. 2021;11(4):e048943. doi:10.1136/bmjopen-2021-048943

WPATH clinicians are strongly aligned with medicalization even when the evidence for it is low-quality and non-existent entirely.

94. Another guideline that the plaintiffs' expert witnesses erroneously cite as representing the standard of care is that by the Endocrine Society. However, the Endocrine Society's guidelines clearly state: [61]

> *"…the guidelines cannot guarantee any specific outcome, nor do they establish a standard of care." (Hembree et al., 2017, p. 3895)*

95. The Endocrine Society's recommendation to halt gender dysphoric minors' puberty and treat them with cross-sex hormones is rated as "weak," and is recognized as coming from low quality evidence by the guidelines itself.[62] The "weak" grading indicates that it is not known whether the benefits outweigh the risks.

96. Notably, the only studies cited in the two key recommendations to treat minors hormonally are the two Dutch studies I described earlier.[63] Thus, the entire foundation of the Endocrine Society's recommendations to medically intervene with gender-dysphoric minors comes from a single small-scale experiment with significant problems, as described earlier.

ii. The National Institutes of Health (NIH)-funded research acknowledges that little is known about pediatric gender transition

97. According to the research protocol filed by the researchers for a recent NIH grant, the data on pediatric gender transitions are almost entirely lacking. The need to conduct this research

[61] *See* Hembree et al., 2017
[62] *See* Hembree et al., 2017
[63] *See* de Vries et al., 2011 and de Vries et al., 2014

demonstrates that this care pathway remains largely experimental, with an unknown risk-benefit ratio. [64]

98. The following quotes from the NIH grant from 2019 clearly demonstrate how immature the field of pediatric gender medicine is: [65]

- *"Although the Endocrine Society Clinical Practice Guidelines are widely adopted by providers around the United States and worldwide, there are no formal empirical studies of related clinical outcomes in transgender children and adolescents."*
- "*…existing models of care for transgender youth…have been used in clinical settings for close to a decade, although with limited empirical research to support them"*
- *"Although these [current clinical practice] guidelines have informed care at academic and community centers across the United States, they are based on very limited data. Furthermore, there is minimal available data examining the long-term physiologic and metabolic consequences of gender-affirming hormone treatment in youth. This represents a critical gap in knowledge that has significant implications for clinical practice across the United States."*
- *"The gap in existing knowledge about the impact of these practices leaves providers and caretakers uncertain about moving forward with the recommended medical interventions for transgender youth seeking phenotypic transition."*

[64] Olson-Kennedy J, Chan YM, Garofalo R, et al. Impact of Early Medical Treatment for Transgender Youth: Protocol for the Longitudinal, Observational Trans Youth Care Study. *JMIR Res Protoc*. 2019;8(7):e14434. doi:10.2196/14434

[65] *See* Olson-Kennedy et al., 2019

99. These quotes, and the substantial amount of money paid by the NIH to fund this research, clearly demonstrate that "gender-affirmative" interventions are still in the experimental stage and are not yet ready to deemed either "safe" or "effective."

100. When there is no data of the benefits, and the risks are substantial, the onus is on the research community to first demonstrate that benefits that outweigh the risks. Until such evidence exists, no standard of care can be claimed.

iii. The United States is increasingly becoming an outlier in its non-evidence-based stance that transitioning minors is a safe and effective practice

101. Sweden is the first country in the world to recognize the legal status of transgender adults. In May of 2021, Sweden's flagship children's hospital, which is affiliated with the Karolinska Institute that grants the Nobel Prize of Medicine, announced that they were discontinuing all new pediatric transitions due to concerns over the lack of efficacy and the potential for significant harm. In May 2022, Sweden's Health Authority (National Board of Health and Welfare/NBHW) issued a country-wide policy that states that going forward, pediatric gender transitions will not be available in general medical practice to those <18. Such interventions will only be provided in strictly controlled clinical trial settings with a focus on the strictest ethical safeguards for youth, given the significant risk of harm.

102. It is noteworthy that the official English translation of Sweden's health authority's decision states:[66]

[66] https://www.socialstyrelsen.se/globalassets/sharepoint-dokument/artikelkatalog/kunskapsstod/2022-3-7799.pdf

"For adolescents with gender incongruence, the NBHW deems that the ***risks of puberty suppressing treatment with GnRH-analogues and gender-affirming hormonal treatment currently outweigh the possible benefits****... This judgement is based mainly on three factors: the continued lack of reliable scientific evidence concerning the efficacy and the safety of both treatments, the new knowledge that detransition occurs among young adults, and the uncertainty that follows from the yet unexplained increase in the number of care seekers, an increase particularly large among adolescents registered as females at birth."*

103. Increasingly, a number of western countries with significant experience in pediatric gender transition are turning away from WPATH and the Endocrine Society's guidelines. In the last 24 months, not just Sweden, but also Finland, the UK, and France, after independently reviewing evidence, have issued their own guidelines that are far more conservative than the stances promoted by the US-based medical societies. [67,68,69]

104. However, in the US, the proponents of medical interventions of minors continue to assert that if a child on the verge of puberty, or an older adolescent meets the diagnostic criteria for gender dysphoria, then medical interventions are without question "medically necessary."

105. This confidence by US clinicians extends to medical interventions for "non-binary" youth who are an even less well-understood population. Procedures viewed as "medically necessary" by some of the proponents of "gender-affirmative care" for minors now include

[67] https://segm.org/Finland_deviates_from_WPATH_prioritizing_psychotherapy_no_surgery_for_minors

[68] https://cass.independent-review.uk/publications/interim-report/

[69] https://segm.org/France-cautions-regarding-puberty-blockers-and-cross-sex-hormones-for-youth

the suppression of puberty indefinitely in order to present as an ambiguous sex, [70,71] mastectomy on youth as young as 13 years of age,[72] and "non-binary" breast surgeries that preserve a feminine appearance while changing the placement of the nipples to be more reminiscent of a male chest, should the minor's identity reside somewhere along the "male to female spectrum." [73]

106. It is my belief that the highly politicized nature of the US debate about transgender healthcare has pushed our country toward an increasingly pro-medicalization position, at the same time the rest of the world is making a U-turn. The failure of the US-based medical societies to recognize the harms that are currently occurring to vulnerable minors is hard to understand, and raises serious ethical questions.

IV. Ethical Considerations and Conclusions

107. Medical ethics rests on four key pillars: the principles of patient autonomy, justice, beneficence, and nonmaleficence.[74] It is my belief as a bioethicist that providing youth with hormones and surgeries directly violates all of these principles. For this reason, it is my belief that true informed consent to "gender-affirming" hormones and surgeries for minors is not possible.

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[70] Notini L, Earp BD, Gillam L, et al. Forever young? The ethics of ongoing puberty suppression for non-binary adults. *J Med Ethics*. Published online July 24, 2020:medethics-2019-106012. doi:10.1136/medethics-2019-106012

[71] Pang KC, Notini L, McDougall R, et al. Long-term Puberty Suppression for a Nonbinary Teenager. *Pediatrics*. 2020;145(2):e20191606. doi:10.1542/peds.2019-1606

[72] Olson-Kennedy J, Warus J, Okonta V, Belzer M, Clark LF. Chest Reconstruction and Chest Dysphoria in Transmasculine Minors and Young Adults: Comparisons of Nonsurgical and Postsurgical Cohorts. *JAMA Pediatr*. 2018;172(5):431. doi:10.1001/jamapediatrics.2017.5440

[73] https://cranects.com/non-binary-surgery/

[74]Varkey B. Principles of clinical ethics and their application to practice. *Med Princ Pract*. Published online June 4, 2020. doi:10.1159/000509119

A. The principle of "Patient Autonomy" is not respected when "gender-affirming" hormones and surgeries are provided to minors

108. Patient autonomy is a bedrock principle of medical ethics, having a long and well-respected history in both medical ethics and the law. In the context of providing hormones and surgeries to gender-dysphoric minors who wish for these interventions, the advocates of medical interventions are misrepresenting the nature of patient autonomy.

109. Rather than the right to *demand and receive* any treatment, patient autonomy is rightfully understood as the patient's right to *consent to* and to *refuse* treatment. Medical care cannot be done without a valid informed consent. It cannot be provided against the patient's will. The court stated this clearly in *Schloendorff v Society of New York Hospital*:

> *"Every human being of adult years and sound mind has a right to determine what shall be done with his own body; and a surgeon who performs an operation without his patient's consent commits an assault for which he is liable in damages."* [75]

110. Patient autonomy has never meant that a patient or their guardian have the right to *demand and receive* treatment that is inappropriate or harmful. For example, pediatricians routinely decline to provide antibiotics to children with viral infections. Well-meaning and deeply concerned parents may be looking for, and even demand, antibiotics as a solution to a child's viral illness. However, we do not prescribe antibiotics in these cases because they have no role in viral infections, carry risks to the child, and the inappropriate use of antibiotics create resistance in the community. Likewise, when worried parents implore physicians for a CT scan of their child's head following a minor head trauma, a conscientious physician will decline such a request. There is no benefit to imaging for

[75] Schloendorff v. Society of New York Hospital, 1914 https://biotech.law.lsu.edu/cases/consent/schoendorff.htm

minor head trauma and there are well-recognized risks that are not insignificant, including sedation and radiation exposure. In these cases, we are not "denying care." We are providing the patients with appropriate medical care and safeguarding them from the risk of harm.

111. Like antibiotics for viral infections or CT scans for minor head injuries, puberty blockers, cross sex hormones, and surgeries do not have proven psychological or physical health benefits for gender-dysphoric youth. This lack of benefit has been the conclusion of recent quality systematic reviews by the UK, Sweden's, and Finland's public health authorities.[76,77,78,79] Sweden's National Health and Welfare Board has determined that risks of gender affirming care "currently outweigh the benefits." [80]

112. The medical risks of "gender-affirming" interventions are substantial. The most recent evidence shows that a gender-dysphoric child with normally timed puberty who is started on puberty blockers has a nearly 100% chance of continuing to cross-sex hormones.[81,82,83] This medical sequence will render the child sterile.

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[76] https://web.archive.org/web/20220414202655/https://arms.nice.org.uk/resources/hub/1070905/attachment

[77] https://web.archive.org/web/20220215111922/https://arms.nice.org.uk/resources/hub/1070871/attachment

[78] SBU. *Hormonbehandling Vid Könsdysfori - Barn Och Unga [Hormonal Treatment of Gender Dysphoria - Children and Adolescents]*. SBU; 2022. https://www.sbu.se/342

[79] Pasternack I, Söderström I, Saijonkari M, Mäkelä M. Lääketieteelliset menetelmät sukupuolivariaatioihin liittyvän dysforian hoidossa. Systemaattinen katsaus. [Appendix 1 Systematic Review]. Published online 2019:106. Accessed May 1, 2022. https://app.box.com/s/y9u791np8v9gsunwgpr2kqn8swd9vdtx

[80] https://www.socialstyrelsen.se/globalassets/sharepoint-dokument/artikelkatalog/kunskapsstod/2022-3-7799.pdf

[81] Wiepjes CM, Nota NM, de Blok CJM, et al. The Amsterdam Cohort of Gender Dysphoria Study (1972–2015): Trends in Prevalence, Treatment, and Regrets. *The Journal of Sexual Medicine*. 2018;15(4):582-590. doi:10.1016/j.jsxm.2018.01.016

[82] Carmichael P, Butler G, Masic U, et al. Short-term outcomes of pubertal suppression in a selected cohort of 12 to 15 year old young people with persistent gender dysphoria in the UK. Santana GL, ed. *PLoS ONE*. 2021;16(2):e0243894. doi:10.1371/journal.pone.0243894

[83] Brik T, Vrouenraets LJJJ, de Vries MC, Hannema SE. Trajectories of Adolescents Treated with Gonadotropin-Releasing Hormone Analogues for Gender Dysphoria. *Arch Sex Behav*. 2020;49(7):2611-2618. doi:10.1007/s10508-020-01660-8

113. Other medical harms also ensue. These include harms to bone health, cardiovascular health, brain development, and other problems. [84,85,86]

114. A physician who grants a minor's wish for these interventions is not respecting patient autonomy. That physician is misusing the principle of patient autonomy to justify unethical experimentation on minors.

115. Another key ethical dilemma regarding patient autonomy is whether the wishes of the 13-year-old should be privileged over the wishes of the future adult self. Can the 13-year-old self fully and truly know what the 25-year-old self will desire regarding the questions of sexual function and reproductive rights? We do not know what the 25-year-old will say about the loss of sexual function or fertility. A price may be paid that can never be recouped, all for bodily change that may or may not comport with the 25-year-old's future identity and desires.

116. It is a well-known fact that many adult trans-identified individuals choose not to undergo "gender-affirming" procedures that threaten their sexual function. While adults chose to preserve their fertility and sexual function, children at Tanner stage 2, which can occur in females as young as 8, are asked to contemplate, decide, and then consent to treatments with puberty blockers followed by cross sex hormones, which will cause sterility. Fertility

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[84] Klink D, Caris M, Heijboer A, van Trotsenburg M, Rotteveel J. Bone Mass in Young Adulthood Following Gonadotropin-Releasing Hormone Analog Treatment and Cross-Sex Hormone Treatment in Adolescents With Gender Dysphoria. *The Journal of Clinical Endocrinology & Metabolism*. 2015;100(2):E270-E275. doi:10.1210/jc.2014-2439

[85] Alzahrani T, Nguyen T, Ryan A, et al. Cardiovascular Disease Risk Factors and Myocardial Infarction in the Transgender Population. *Circ: Cardiovascular Quality and Outcomes*. 2019;12(4). doi:10.1161/CIRCOUTCOMES.119.005597

[86] Schneider MA, Spritzer PM, Soll BMB, et al. Brain Maturation, Cognition and Voice Pattern in a Gender Dysphoria Case under Pubertal Suppression. *Front Hum Neurosci*. 2017;11:528. doi:10.3389/fnhum.2017.00528

preservation – harvesting of egg or sperm – may be discussed by the proponents of medicalization. However, there are no mature egg or sperm to harvest at Tanner stage 2. Sterility is guaranteed with oophorectomy and removal of testes (castration).

117. It is important to note that a number of individuals who identified as transgender in their teen years and no longer identify as transgender upon reaching maturity have expressed gratitude that they did not undergo medical and surgical interventions that would have rendered them infertile. This sentiment is echoed by detransitioners who did receive these interventions and express disappointment, grief, and anger that nobody resisted their desires. No one challenged them. No one slowed down the younger version of themselves.[87,88]

118. The principle of patient autonomy also requires a fiduciary, trusting relationship between physician and patient. Truthfulness and full disclosure of information must occur for the patient and parent to exercise autonomy. As my arguments demonstrate, the low-quality evidence, lack of long-term follow-up, and increasing reports of harm, regret, and detransition, all raise grave concerns about "gender-affirmative care."

119. In my experience of having reviewed informed consent forms, speaking to physicians and therapists involved in "gender affirmative" care that refer for or prescribe puberty blockers and cross sex hormones, and talking to patients and parents who have transitioned or are seeking to transition, many of these concerns are not disclosed to patients and families. While some well-established risks are mentioned, the profound uncertainties are not acknowledged, and even denied by proponents of "gender-affirmative" care.[89]

[87] *See* Vandenbussche (2021)
[88] *See* Littman (2021)
[89] *See* Levine, 2022

120. For example, puberty blockers are often misrepresented as fully reversible despite mounting evidence that they irreversibly impeded bone growth, impact cognitive development, change the psycho-sexual profile toward a diminished sexual desire, and likely have a host of other yet unknown consequences. The relative safety record of puberty blockers administered for precocious puberty (e.g., a 5-year old who is starting to develop pubic hair and develop breasts) is being misrepresented as evidence that this intervention will be safe and fully reversible when used off-label to stop normally-timed puberty.

121. Puberty is the developmentally appropriate time when every organ system benefits from sex hormones to reach its optimal adult function. We do not know the long-term effects of stopping the biologically vital, normally timed process of puberty for several years. This is the reason why the UK's National Health Service recently replaced its statement that puberty blockers are reversible and now states: [90,91]

> "*Little is known about the long-term side effects of hormone or puberty blockers in children with gender dysphoria*." (NHS)

122. Also, it is typically not disclosed to the patients that the population on which the Dutch protocol was originally tested does not match most of the cases presenting today and that most cases treated with the protocol today would have been disqualified by the original study. Specifically, the Dutch excluded from transition adolescents whose transgender identity was not clearly established in early childhood, and those with significant mental

[90] https://www.spectator.co.uk/article/the-nhs-has-quietly-changed-its-trans-guidance-to-reflect-reality
[91] https://www.nhs.uk/conditions/gender-dysphoria/treatment/#:~:text=Puberty%20blockers%20and%20cross%2Dsex%20hormones&text=Little%20is%20known%20about%20the,the%20psychological%20effects%20may%20be.

health problems. [92] Nor is it typically disclosed to the patients and parents that the mental health of the Dutch study participants did not statistically or meaningfully improve after gender reassignment. Instead, these treatments are misrepresented as "life-saving."

123. Finally, patient autonomy is correctly understood as the freedom to act towards one's objective good. "Gender-affirming care" leads to sterilization, increased risk to general health (bone, cardiac, others), surgical complications, the potential for worsened mental health, and in a growing number of instances, future regret. These outcomes are objectively bad.

124. Thus, it is my opinion as a bioethicist that "gender-affirming" interventions with hormones and surgery for minors not only fail to support the core principle of Autonomy, but they directly violate it.

B. The principle of "Justice" is violated when minors are provided with "gender-affirming" hormones and surgery

125. The right to control one's reproduction and sexual function is well recognized by United States law and court rulings. Article 16 of the United Nations Universal Declaration of Human Rights recognizes that "men and woman of full age have the right…to found a family."

126. It is now well recognized that puberty blockers followed by cross sex hormones are, in effect, chemical castration, which is likely irreversible. The removal of testicles, which WPATH supports as early as 17 years of age in the draft of its upcoming guidelines, is irreversible castration.

[92] *See* Delemarre-van de Waal & Cohen-Kettenis, 2006 and Cohen-Kettenis et al., 2008.

127. It is unjust and unethical to sterilize a gender-non-conforming, mentally distressed adolescent. In my opinion, this is precisely what "gender-affirmative care" is doing to children. Children and adolescents do not have the capacity—the knowledge, understanding, and judgement—to comprehend the gravity of the decision they are making regarding their fertility.

128. The United States medical profession has a shameful history regarding forced and coerced sterilization of minors and adults without informed consent. All people of goodwill now agree that the court erred when it upheld these unethical sterilization practices in Buck v Bell (274 U.S. 200, 1927). [93]

129. It is my opinion as a bioethicist that "gender-affirming" interventions for minors violates the core ethical principle of Justice.

C. The ethical principles of "Beneficence" and "Non-Maleficence" are violated by providing minors with "gender-affirming" hormones and surgeries

130. The principles of beneficence and non-maleficence are fundamental principles of medical ethics. They require that medicine must do good and avoid harm. The Dutch Study[94] on which the practice of pediatric transition rests (as evidenced by the Endocrine Society Guidelines' citations [95]) has demonstrated that the "good" was narrowly defined and remains highly uncertain, while the "harm" was self-evident.

131. The Dutch Study claimed the greater "good" by claiming (correctly) that post-surgery the young adults who emerged after transition were functioning well, or even better, than the

[93] https://supreme.justia.com/cases/federal/us/274/200/

[94] *See* de Vries et al., 2014

[95] *See* Hembree et al., 2017

average 21-year-old Dutch peer. However, the study authors did not reflect on the fact that their screening methods nearly guaranteed such an outcome, since their carefully-selected 70 study subjects were already extremely high functioning before treatment.

132. Their beneficial claims also fail to address the harm to the patient with postoperative death after genital surgery and several instances of diabetes and obesity that developed during treatment.[96]

133. It has been longer than 10 years since these adolescents were transitioned, and we have no long-term follow up on this cohort. However, another study by the Dutch of an adolescent treated with the same protocol several years earlier did follow that individual into their mature adult years and the results are not reassuring. When this individual was first followed as a young 20-year old shortly after surgery, he was happy with the transition and the appearance of his genitals.[97] However, when followed up again at the age of thirty-five the situation had changed.

134. The patient was living alone and unable to form a loving relationship with a partner. He attributed the inability to form a long-lasting stable relationship to the shame about his genitalia. [98] This case does not lend confidence to the notion that the youth in the Dutch Study will be thriving in key aspects of their lives once they reach a mature adult age.

135. The Endocrine Society relies heavily on the Dutch Protocol in writing their guidelines, yet they fail to address the serious harms that were present and reported in the Dutch Study.

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[96] *See* de Vries et al., 2014

[97] Cohen-Kettenis PT, van Goozen SHM. Pubertal delay as an aid in diagnosis and treatment of a transsexual adolescent. *European Child & Adolescent Psychiatry*. 1998;7(4):246-248. doi:10.1007/s007870050073

[98] Cohen-Kettenis PT, Schagen SEE, Steensma TD, de Vries ALC, Delemarre-van de Waal HA. Puberty Suppression in a Gender-Dysphoric Adolescent: A 22-Year Follow-Up. *Arch Sex Behav*. 2011;40(4):843-847. doi:10.1007/s10508-011-9758-9

They fail to mention or address the fact that fertility was destroyed in 100% of the youth transitioned in the Dutch Study. Nor are the 3 cases of new onset diabetes and obesity that developed during the Dutch Study addressed by the Endocrine Society. It cannot be said for certain that transition caused these effects, but a 4.3% rate of diabetes in a pediatric population is highly unusual and should lead to further concern and study. Another adolescent in the Dutch Study stopped short of gender confirming surgery. This patient has had irreversible changes from puberty blockers followed by cross-sex hormones. We do not know the effects of these permanent changes on this young person's life.

136. The one young person who tragically died as a result of surgical complications has already been mentioned. Death was due to tissue necrosis as a complication of a vaginoplasty: a procedure to construct a neo-vagina from the penis after castration. This translates into a 1%-2% death rate.

137. The evidence of regret is now emerging from newer research. The first large study of detransitioners in 2021 reported on 237 people. They stopped transitioning on average 4 years after starting. [99] Another study of 100 people who regretted their sex transition stopped the process on average 3.9 years after it began.[100] These numbers dwarf the participants in the Dutch Study, which ended their report 18 months after transition.

138. Many of the studies that purport benefit of transition recruit participants from online pro-transition activist sites. [101,102] At the same time, little attention is paid to the emerging

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[99] See Vandenbussche, 2021.

[100] Littman, 2021

[101] Turban JL, King D, Carswell JM, Keuroghlian AS. Pubertal Suppression for Transgender Youth and Risk of Suicidal Ideation. *Pediatrics*. 2020;145(2):e20191725. doi:10.1542/peds.2019-1725

[102] D'Angelo R, Syrulnik E, Ayad S, Marchiano L, Kenny DT, Clarke P. One Size Does Not Fit All: In Support of Psychotherapy for Gender Dysphoria. *Arch Sex Behav*. Published online October 21, 2020. doi:10.1007/s10508-020-01844-2

online communities of detransitioners and their stories are readily dismissed by proponents of affirmative care. One such community has over 28,000 subscribers, at least half of whom are estimated to be actual detransitioned patients.[103] The sheer numbers of people on the site sharing their devastating transition stories, their regret, and their harms dwarfs the Dutch case series of 55. The stories posted here are heart wrenching and indisputable evidence of the great harm being done.

139. There is no doubt in my mind that parents of children receiving "gender-affirming" interventions want the best for their children, and they are acting on advice of professionals. It is the physicians and counselors whom I believe have failed these parents and their children, falsely asserting that gender transition will help their children long-term. Many of these professionals themselves are misled by the activism that has taken over US-based professional bodies.

140. No matter how well-meaning the advocates of pediatric gender transition are, their actions lack beneficence. The experiment of medically and surgically transitioning minors lacks long-term outcome data. There is no meaningful evidence of long-term benefits. There are many demonstrable harms. And there remain many unknowns and uncertainties.

D. True informed consent for "gender-affirming care" for minors is not possible

141. Informed consent is another foundational principle of bioethics. It rests on all the other principles and requires a trusting and truthful relationship with one's physician. Physician-patient relationships must respect personal autonomy, promote the patient good, avoid harms, and seek justice. As a bioethicist, I am deeply concerned that valid informed

[103] https://www.reddit.com/r/detrans/

consent, a prerequisite of ethical care, is not possible in the context of "gender-affirmative care" for minors.

142. For informed consent to be valid the minor child or parent must understand the proposed procedure. The possible benefits, risks, limitations, and alternatives must be disclosed to the minor patient and parent. Since the information regarding "gender-affirmative care" is of low quality, unreliable, and very uncertain, a true understanding is not possible.

143. Also, for the consent to be valid, alternative approaches, including the approach to not medically intervene with one's gender non-conformity, must be discussed. However, alternative approaches such as psychotherapy,[104] which are now recommended as the first line and often the only treatment for gender dysphoric youth in European countries, are often withheld from US children and misrepresented as "conversion." This is dishonest and further undermines the informed consent process.

144. In addition, informed consent is not valid if decisions are made under coercion or duress (The Nuremberg Code, 1946).[105] It is highly problematic that the so-called "gender specialists" raise the specter of suicide. This can only alarm parents and their children, with wrongful and unsupported claims that these radical interventions are "lifesaving." These claims wrongly imply that transgender patients will commit suicide if not permitted to transition.

145. It is true that self-harm and suicidal thoughts are increased in trans-identified youth, but the suicide risk is on par with youth who have other mental health conditions, and thankfully,

[104] Schwartz D. Clinical and Ethical Considerations in the Treatment of Gender Dysphoric Children and Adolescents: When Doing Less Is Helping More. *Journal of Infant, Child, and Adolescent Psychotherapy*. Published online November 22, 2021:1-11. doi:10.1080/15289168.2021.1997344

[105] https://www.ushmm.org/information/exhibitions/online-exhibitions/special-focus/doctors-trial/nuremberg-code

the absolute risk of suicide among gender-dysphoric youth remains exceedingly rare, recently estimated at 0.03% over 10 years in the UK.[106] That the US is not doing similar quality research with clinic-referred populations, instead relying on alarmist statistics derived from online activist surveys, further emphasizes just what an outlier the US-based approach to gender dysphoric minors has become compared to the rest of the western world.

146. Unfortunately, no study to date has been able to demonstrate that actual suicides are reduced post-transition. Parents are wrongly and unethically told that transition is the only solution to their child's problems. The "transition or suicide" mantra proclaimed by gender ideology is coercive, untrue, and unethical. [107]

147. Ethical behavior demands that we are truthful with our patients. Dishonesty, deceit, and coercion are unethical. Problematically, in my experience, some proponents of medicalization of minors mislead children and their families that "gender-affirming care" leads to a "sex change." They assert that through the hormonal and surgical manipulations of one's physical body, the "true sex," which they claim is signified by their "gender identity" will be allowed to emerge. I have heard from youth who decided to detransition when they finally come to the realization that they will never become the opposite sex. It is hard for me to believe that professionals mislead children in such a fundamental way.

148. Children believe adults. This is especially true when adults with medical degrees assure them that they can change sex. At least some of these children will be bitterly disappointed later when they realize that they will be medically dependent for life. Cross-sex hormones

[106] Biggs M. Suicide by Clinic-Referred Transgender Adolescents in the United Kingdom. *Arch Sex Behav*. Published online January 18, 2022. doi:10.1007/s10508-022-02287-7

[107] https://www.wbez.org/stories/id-rather-have-a-living-son-than-a-dead-daughter/69b0e784-d9c1-44a3-a0f7-419864fe0d3c

will be needed for life to maintain the superficial appearance of the desired sex. They will never be able to procreate. Their sexual function destroyed, and reproductive capacity lost forever. And they will come to realize that their sex, which permeates every cell in their body, is immutable and unchangeable.

149. Mature adults with well-controlled mental health problems can consent to gender transition, provided they have received full and truthful disclosure of the complete range of benefits, risks and uncertainties associated with gender transition.

150. However, I am confident that children are not capable of either consenting or assenting to such a profound decision under any circumstances—and especially when they and their caregivers are effectively being misled by the medical community in fundamental ways.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct. Executed on May 1, 2022.

Patrick Hunter

CURRICULUM VITAE

Patrick K. Hunter, MD, MSc

PERSONAL DATA

Place of Birth	Chicago, IL
Home Address	[redacted]
Telephone	[redacted]
Email	[redacted]

EDUCATIONAL DEGREES

May 1992	MD	University of Louisville Louisville, Kentucky
April 2020	MSc, Biomedical Ethics	University of Mary Bismarck, ND
May 1988	BA Zoology	Miami University Oxford, Ohio

POSTGRADUATE TRAINING

1992 to 1995	Internship and Residency Tripler Army Medical Center Department of Pediatrics Honolulu, Hawaii

PROFESSIONAL EXPERIENCE

January 2022-present	Pensacola Pediatrics Milton, FL
August 2015 to December 2021	Lake Nona Pediatrics, in Association with Nemours
August 2013 to July 2015	The Maui Medical Group Wailuku, HI Member, Board of Directors
June 2008 to June 2013	U.S. Department of Defense Tripler Army Medical Center and Naval Health Clinic Hawaii Honolulu, HI Academic General Pediatrician Chief, Mother-Baby Unit
July 1998 to June 2008	The Purcell Clinic Laurinburg, North Carolina Partner/Owner
July 1995 to June 1998	Staff Pediatrician & Chief of the Pediatric Clinic Captain, Medical Corps US Army Darnall Army Community Hospital Fort Hood, Texas

CURRICULUM VITAE

Patrick K. Hunter, MD, MSc

EDUCATIONAL APPOINTMENTS

July 2017 to present	Assistant Professor of Medicine University of Central Florida College of Medicine
March 2009 to June 2015	Assistant Clinical Professor Department of Pediatrics University of Hawaii John A. Burns School of Medicine
February 2012 to July 2013	Assistant Clinical Professor Department of Pediatrics Uniformed Services University of the Health Sciences Bethesda, Maryland
1998 – 2008	Study Investigator North Carolina Children and Adult Research Foundation

CLINICAL INTERESTS

Biomedical ethics
Judicious use of health care services
Immunizations
Asthma -- patient and parental education and motivation
Promotion of early childhood literacy
Newborn and Neonatal Care
Breastfeeding Promotion
Infectious Diseases
Well Child Care
Motivational Interviewing

HOSPITAL APPOINTMENTS

Nemours Children's Hospital Orlando, FL	2015 to 2021
Ethics Committee	
Maui Memorial Hospital Wailuku, HI	2013 to 2015
Tripler Army Medical Center Honolulu, HI	2008 - 2012
Scotland Memorial Hospital Laurinburg, NC	1998-2009
Medical Record Review Committee	2001-2002
Chairman, Department of Pediatrics	2001-2002, 2007-2008
Medical Executive Committee	2001-2005, 2007-2008
Medical Staff Secretary	2001-2002
Chief of Staff—Elect	2002-2003
Chief of the Medical Staff	**2003-2004**
Chair, Credentials Committee	**2004-2005**
Physician Effectiveness Committee	**2002-2008**

CURRICULUM VITAE

Patrick K. Hunter, MD, MSc

MEDICAL LICENSES

Hawaii
Florida

BOARD CERTIFICATION

American Board of Pediatrics — October 1995

COMMUNITY SERVICE

Scotland County Habitat for Humanity
Board Member — 2002-2003

Scotland Memorial Hospital
Foundation Board Member — 1999-2002

Scotland Memorial Hospital
Board Member — 2003-2005
Executive & Operating Committee Member — 2003-2004

St. Andrews Presbyterian College
Laurinburg Area Campaign Committee — 2000 and 2007

St. Anthony Catholic Church
Knights of Columbus — 2008 to 2013
Pastoral Council — 2010 to 2012

St. Thomas Free Clinic — 2018 to 2021
Pediatrician

St. John Fisher Catholic Church — 2018 to 2021
Finance Committee

ABSTRACTS, PAPERS, AND PRESENTATIONS

The Western Society of Pediatric Research Annual Meeting, February 1994
Pallister Hall syndrome in siblings, a case report and review of the literature Abstract and presentation

Smith AE, Vedder TG, Hunter PK, et al. The Use of Newborn Screening Pulse Oximetry to Detect Cyanotic Congenital Heart Disease: A Survey of Current Practice at Army, Navy, and Air Force Hospitals. *Military Medicine*. March 2011; 176(3) 343-346

Hunter PK. Political Issues Surrounding Gender Affirming Care of Transgender Youth. *JAMA Pediatrics*. December 2021; 176(3):322-323. doi:10.1001/jamapediatrics.2021.5348

DOC. 69-7

DEFENDANT'S EXHIBIT 7

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER, *et al.*,	)	
Plaintiffs,	)	
v.	)	No. 2:22-cv-00184-LCB-SRW
KAY IVEY, in her official capacity as Governor of the State of Alabama, *et al.*,	)	
Defendants.	)	

DECLARATION OF DIANNA KENNY

My name is Dianna Kenny. I am over the age of 19, I am qualified to give this declaration, and, I have personal knowledge of the matters set forth herein.

I am a former Professor of Psychology at the University of Sydney. I now practice as a consulting psychologist and psychotherapist. My CV is attached to this declaration. Recent publications can be found at www.diannakenny.com.au and https://www.researchgate.net/profile/Dianna-Kenny. Some are also listed on my CV.

I was retained by the State of Alabama as an expert witness in the above-styled case. A copy of my expert report is attached to this declaration. It contains my opinions in this matter based upon my research and experience. I have reviewed the Complaint filed by the Plaintiffs and the declarations submitted by the Plaintiffs.

In the past four years, I have provided expert testimony in the following cases: 12, supplied on request.

I am compensated at the rate of $__400__ per hour for my work on this matter. My compensation is not dependent upon the substance of my opinions or the outcome of the case.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct. Executed on ___1 May__, 2022.

Dianna Kenny

IN THE UNITED STATES DISTRICT COURT

FOR THE MIDDLE DISTRICT OF ALABAMA

NORTHERN DIVISION

JEFFREY WALKER, et al.,

Plaintiffs,

v.

STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama, BRIAN C.T. JONES, in his official capacity as District Attorney for Limestone County, and JESSICA VENTIERE, in her official capacity as District Attorney for Lee County,

Defendants.

Civil Action No. 2:22-cv-00167

DECLARATION OF DIANNA KENNY PHD IN SUPPORT OF

S.B. 184 (THE "FELONY HEALTH CARE BAN" OR THE "BAN")

TABLE OF CONTENTS

CHAPTER 1

SOCIAL CONTAGION

Abstract

In this chapter, I review the evidence for social contagion of gender dysphoria in adolescents. I begin with a review of the historical phenomenon of social contagion, demonstrating that it predated the digital age. I then review the nature of social contagion and the mechanisms by which certain phenomena are propagated through social networks. Social network analysis, the method applied to study contagions of all kinds, was first developed and used in public health as a way of determining the spread of diseases. For the spread of social phenomena among adolescents, three mechanisms - peer contagion, deviancy training and co-rumination in peer groups - have been identified as "spreaders." Four possible causes of peer effects – endogenous, exogenous, correlated and social media – all amplify the spread of information in a social network. Four areas of empirically established social contagion in adolescents - marijuana use, eating disorders, non-suicidal self-injury, suicide and emotion – are presented as a prelude to the discussion of how the same processes are at work in the social contagion of gender dysphoria and the wish to transition in adolescence. Specific mechanisms of transmission such as low gender typicality, peer victimization, ingroups, the trans-lobby, the role of social media in rapid onset gender dysphoria (ROGD) in are proposed. Preliminary statistical support for social contagion in gender dysphoria are presented.

INTRODUCTION: SOCIAL CONTAGION PREDATES THE DIGITAL AGE

> It is not famine, not earthquakes, not microbes, not cancer but man himself who is man's greatest danger to man, for the simple reason that there is no adequate protection against psychic epidemics, which are infinitely more devastating than the worst of natural catastrophes - Carl Jung

The term social contagion describes the "spread of phenomena (e.g., behaviours, beliefs and attitudes) across network ties" (Christakis & Fowler, 2013, p. 556). Social contagion has existed long before the advent of the digital age and social media. In 1774, Johann von Goethe (1990) published a novel, *The sorrows of young Werther*, in which an idealistic young man finds his actual life too difficult to reconcile with his poetic fantasies, including his

unrequited love for his friend's fiancée. He eventually becomes so depressed and hopeless by the perceived emptiness of his life, he commits suicide. Goethe was able to capture the nameless dread and endless longing of the human condition so well that his novel spawned a number of suicides, committed in the same way that Werther had killed himself, by shooting (Phillips, 1974). Such was the alarm created by this phenomenon, the book was banned in several European cities.

More than two hundred years later, in 1984, the suicide of a young Austrian businessman, who threw himself in front of a train, initiated a spate of similar suicides that averaged five per week for nearly a year. Sociologists argued that this alarming occurrence was amplified by media coverage that glamorised suicide by providing graphic images of the suicidal act and details of the young man's life. When media exposure of the event was curtailed and then stopped completely, the suicide rate dropped by 80 percent almost immediately. Although the influence of suggestion and imitation on suicide rates was dismissed by Durkheim (2005/ 1897), Phillips's (1974) work indicated that these factors do indeed play a significant role in the increase in suicides following a publicised suicide.

In 1841, a Scottish journalist, Charles Mackay (2012) wrote a book entitled *Extraordinary popular delusions and the madness of crowds.* In the preface to the first edition of the book, the aim of writing it is stated thus:

> …to collect the most remarkable instances of those *moral epidemics* … to show how easily the masses have been led astray, and how imitative and gregarious men are, even in their infatuations and crime (p. 1) …Popular delusions began so early, spread so widely, and have lasted so long, that instead of two or three volumes, fifty would scarcely suffice to detail their history... The present may be considered…a miscellany of delusions, a chapter only in the great and awful book of human folly (p. 3).

The preface to the second edition in 1852 continued this theme:

> Nations… like individuals, …have their whims and their peculiarities; their seasons of excitement and recklessness… whole communities suddenly fix their minds upon one object and go mad in its pursuit; …millions of people become simultaneously impressed with one delusion, and run after it, till their attention is caught by some new folly more captivating than the first. At an early age in the annals of Europe its

> population lost their wits about the sepulchre of Jesus and crowded in frenzied multitudes to the Holy Land; another age went mad for fear of the devil and offered up hundreds of thousands of victims to the delusion of witchcraft... the belief in omens and divination of the future… defy the progress of knowledge to eradicate them entirely from the popular mind… *Men… think in herds; …they go mad in herds, while they only recover their senses slowly, and one by one* [Author's italics] (p. 7).

With the arrival of COVID-19, the World Health Organization (WHO) warned that there would be an "infodemic"[1] of misinformation spawned by social contagion. This has in fact occurred, but the false beliefs have not taken centre stage and swept all science before it in the manner of transgender ideology. As Anderson (2018)[2] concluded:

> The [transgender] movement has to keep patching and shoring up its beliefs, policing the faithful, coercing the heretics, and punishing apostates, because as soon as its furious efforts flag for a moment or someone successfully stands up to it, the whole charade is exposed. That's what happens when your dogmas are so contrary to obvious, basic, everyday truths. A transgender future is not the "right side of history," yet activists have convinced the most powerful sectors of our society to acquiesce to their demands. While the claims they make are manifestly false, it will take real work to prevent the spread of these harmful ideas.

SOCIAL NETWORK EFFECTS UNDERLIE SOCIAL CONTAGIONS

Using very large datasets (e.g., Framingham Heart Study) that have collected longitudinal data on original participants (Original cohort), as well as their children (Offspring cohort) and their children's children (Third generation cohort) and including their spouses, siblings, friends and neighbours, Christakis and Fowler have shown that social network effects, known as clustering, remain strong and can extend to those up to three degrees of separation from the original cohort. Such effects have been demonstrated across a large range of factors by different researchers using differing datasets. Examples include overweight/obesity, sleep patterns, smoking, alcohol abuse, alcohol abstention, marijuana use, loneliness, happiness, depression, cooperation, and divorce among others. It can be argued that the spread of

[1] W.H.O. Fights a Pandemic Besides Coronavirus: An 'Infodemic' - The New York Times (nytimes.com)
[2] The Philosophical Contradictions of the Transgender Worldview - Public Discourse (thepublicdiscourse.com)

gender dysphoria and transgenderism is underpinned by these now well-established mechanisms of social contagion in other human behaviours.

Social network analysis, the method applied to study contagions of all kinds, was first developed and used in public health as a way of determining the spread of diseases (e.g., influenza, HIV/AIDS) that resulted in pandemics. It was subsequently applied to the challenges of introducing changes and innovations in the health system (Blanchet, 2013). Its applications have since expanded with the advent of computers, the internet, mobile and smart phones, and social media. Members of a network play different roles in the dissemination of innovations. A small number will adopt early (i.e., early adopters). Some of these will become opinion leaders who are central to the network who contaminate their "peers" (homophily) who in turn will influence those others at different levels of the network.

There are three types of social networks; (i) egocentric (networks assessing a single individual); (ii) sociocentric (social networks in a well-defined social space, such as a hospital or a school); and (iii) open system networks (e.g., globalised markets, social media). Each network consists of nodes (members), ties (connections between nodes), and measures of centrality, density and periphery or distance between the nodes. Networks with high centrality are the most effective in disseminating information or innovation. A key example is the transactivist lobby that has achieved spectacular success in a short time in changing health care, educational practices and legislation related to transgender individuals. Other characteristics of networks include cohesion (number of connections within a network) and shape (distribution of ties within the network) (Otte & Rousseau, 2002).

First, I examine the concept of social contagion and the mechanisms by which it influences behaviour and attitudes. Then I review four adolescent behaviours that have been empirically revealed to be subject to social contagion. I then demonstrate that the same principles of social contagion apply to the increase of young people who believe that they are transgender and are consequently seeking irreversible medical remedies to assuage their gender dysphoria. Finally, I explore the social contagion (i.e., clustering) of medical practice with respect to treatment of gender dysphoria, the precipitous legislation appearing in its support, and changes to policy and practice in education and sport, despite our collective failure to

date to fully understand the phenomenon of gender dysphoria and its rapid, epidemic-like spread in the Western world.

THE MECHANISMS OF SOCIAL CONTAGION

(i) Peer contagion

Peer contagion is a form of social contagion, defined as a process of reciprocal influence to engage in behaviours occurring in a peer dyad that may be life-enhancing (e.g., taking up a sport, studying for exams, health screening, resisting engaging in negative behaviours, altruism) or life-compromising (e.g., illegal substance use, truanting from school, aggression, bullying, obesity). Peer contagion has a powerful socializing effect on children beginning in the pre-school years. By early childhood, the time spent interacting with same-age playmates frequently exceeds time spent with parents (Ellis, Rogoff, & Cromer, 1981). Further, characteristics of peer interactions in schools (e.g., aggression, coercive behaviours, mocking peers) are carried over into the home environment (Patterson, Littman, & Bricker, 1967). By middle childhood, gender is the most important factor in the formation of peer associations, highlighting the significance of gender as the organizing principle of the norms and values associated with gender identity (Fagot & Rodgers, 1998).

(ii) Deviancy training as a mechanism of social contagion

Different mechanisms of transmission of peer influence have been identified. Deviancy training, in which deviant attitudes and behaviours are rewarded by the peer group have a significant effect on the development of antisocial attitudes and behaviours such as bullying, physical violence, weapon carrying, delinquency, juvenile offending, and substance abuse (Dishion, Nelson, Winter, & Bullock, 2004). Aggression in adolescence becomes more covert and deliberate and takes the form of exclusion, spreading rumours, and suborning relational damage among an adolescent's friendship network (Sijtsema, Veenstra, Lindenberg, & Salmivalli, 2009). Interestingly, adolescents associated with peers who engage in instrumental aggression became more instrumentally aggressive, while those associated with peers who engaged in relational aggression became more relationally aggressive, demonstrating the specificity of the effects of peer contagion via the deviancy training.

(iii) Co-rumination as a form of social contagion

Another form of peer contagion in adolescence is co-rumination, a process of repetitive discussion, rehearsal and speculation about a problematic issue within the peer dyad or peer group that underlies peer influence on internalizing problems such as depression, anxiety, self-harm, suicidal ideation and suicide (Schwartz-Mette & Rose, 2012). Co-rumination is more common among adolescent girls (Hankin, Stone, & Wright, 2010) although a similar phenomenon among boys has been observed. Being in a friendship that engages in perseverative discussions on deviant topics has been associated with increased problem behaviour over the course of adolescence. The longer these discussions, the greater the association with deviant behaviour in later adolescence (Dishion & Tipsord, 2011).

Peer contagion may undermine the effects of positive socializing forces such as schools, rehabilitation programs for young offenders, and treatment facilities for eating disorders among others. Collecting same-minded adolescents into group programs may be counter-productive because the peer influence impacts of a homogeneous peer group to maintain disordered behaviours may be greater than the program effects of the treatment facility (Dishion & Tipsord, 2011).

Young people are particularly vulnerable to peer contagion if they have experienced peer rejection, hostility and/or social isolation from the peer group (Light & Dishion, 2007). On the contrary, protective factors against peer contagion effects include secure attachment to parents, adequate adult supervision and oversight of the young person's activities, school attendance, and the capacity for self-regulation (T. W. Gardner, Dishion, & Connell, 2008).

(iv) Social contagion has a causal effect on behaviour uptake

Establishing a causal role for the effect of peer behaviour on adolescents is difficult because adolescents choose their peer networks; that is, they choose to associate with like-minded adolescents and those exhibiting similar attributes (homophily). This raises the question: Do adolescents choose their peers because they sanction and engage in similar behaviours or can peer social networks explain the uptake of (new) behaviours in individuals in the network? Sophisticated statistical models have been used to tease out the relative contributions of peer selection and peer influence. Correctly attributing the effects of these two factors has

important policy implications since most interventions for reducing risky behaviour among adolescents are implemented at a school level (Ali & Dwyer, 2010).

(v) The special case of social contagion via social media

In the world of social media, social contagion takes on a new, less complex, and narrower meaning:

> "Unlike the broadcasts of traditional media, which are passively consumed, social media depends on users to deliberately propagate the information they receive to their social contacts. This process, called social contagion, can amplify the spread of information in a social network" (Nathan & Kristina, 2014, p. 1).

For example, the social network 'Instagram' is one of the most popular platforms for adolescents and young people, with 44% reporting Instagram to be an important part of their daily lives (Feierabend et al. 2015). Analysis of content shows that it is a major vehicle for the sharing of mental health issues, including depression, eating disorders, and non-suicidal self-injury (NSSI) (Fischer et al. 2015).

Systematic reviews have identified both potential risks and benefits of online activity. On the one hand, it reduces social isolation and offers encouragement, camaraderie, and reduction of self-harm impulses. On the other, it enables, enhances, or triggers potential risks of 'copycat' behaviours such as NSSI, suicide, and eating disorders through normalization of pathological behaviours, or vicarious and social reinforcement of these behaviours (Brown, et al., 2017).

A number of studies have demonstrated the impact that social media can have on emotional contagion. For example, one study[3] demonstrated that interactions with others can alter our mood in the direction of the mood of the person with whom we are interacting. A number of mechanisms - for example, social influence, social selection, and shared external causation – can impact our changes in mood. The phenomenon is prevalent in bounded social networks such as touring orchestras where adolescent musicians have been observed to become more

[3] Block, P., & Burnett Heyes, S. (2020). Sharing the load: Contagion and tolerance of mood in social networks. *Emotion*. Advance online publication. doi: https://doi.org/10.1037/emo0000952

reciprocally similar in mood to their close associates on tour. The observed emotional contagion effects are greater for negative than positive moods.

In a study on Twitter posts[4], the distribution of positive and negative comments varied according to weekends and holidays. Figure 1 shows the trends.

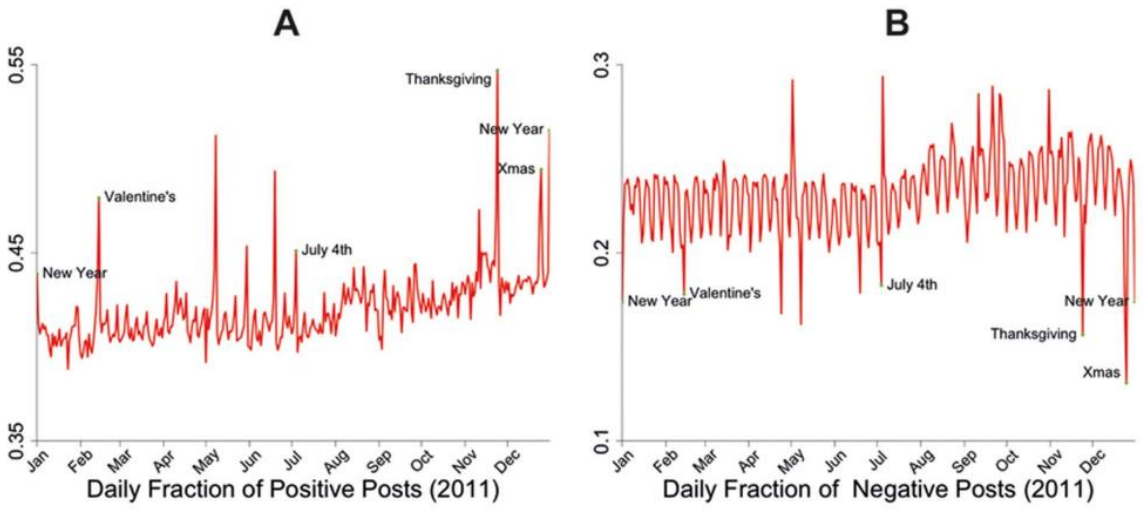

Figure 1

Pain behaviour has also been shown to be affected by the social mechanisms of observation, modelling, vicarious learning, social interaction and media reports. Both placebo and nocebo hyperalgesia have been recorded in patients who observed confederates modelling pain behaviour in response to social stimuli[5].

While many studies show how emotions spread between individuals in direct contact, a novel study demonstrated that online social networks produce emotional contagion in the same way[6]. Using data from millions of Facebook users, the researchers showed that rainfall directly influences the emotional content of their status messages, including messages of friends in other cities who were not experiencing rainfall. Results showed that …"for every person affected directly, rainfall altered the emotional expression of one to two other people,

[4] Golder SA, Macy MW (2011) Diurnal and seasonal mood vary with work, sleep, and daylength across diverse cultures. *Science* 333: 1878–81.
[5] Benedetti, F. (2013). Responding to nocebos through observation: social contagion of negative emotions. *Pain*, *154*(8), 1165.
[6] Coviello, L., Sohn, Y., Kramer, A. D., Marlow, C., Franceschetti, M., Christakis, N. A., & Fowler, J. H. (2014). Detecting emotional contagion in massive social networks. *PloS One*, *9*(3), e90315.

suggesting that online social networks may magnify the intensity of global emotional synchrony" (p. 1165).

EVIDENCE FOR SOCIAL CONTAGION AMONG ADOLESCENTS

In this section, I review the evidence for social contagion among adolescents for four key psychopathologies that arise in adolescence (eating disorders, marijuana use, non-suicidal self-injury, and suicide) and compare the mechanisms of social contagion in these well documented areas with evidence for social contagion in gender dysphoria.

(i) Anorexia nervosa

A number of researchers have identified the central role of social contagion in the development and propagation of anorexia nervosa in adolescent girls (Allison, Warin, & Bastiampillai, 2014). Adolescence is a time in which the focus on oneself becomes intense, and for some, critical and unrelenting. The developing female body constitutes one of the main objects of scrutiny. When this scrutiny is compounded by the collective inspection of all of one's body's flaws, the peer group becomes a powerful crucible for both the development and maintenance of disordered eating.

Intensification of peer influence in closed communities of like individuals, such as schools, inpatient wards, residential units (Huefner & Ringle, 2012), or therapy groups often results in the advocacy of the practices (e.g., self-starvation, compulsive exercise, deceitful practices around eating) associated with anorexia nervosa (Dishion & Tipsord, 2011).

If we add social media and online networks as further sources of influence, affected adolescents can effectively surround themselves exclusively with like minds, thereby normalising cognitive distortions around eating and body image and making recovery very difficult. These effects are further compounded by the high status of thinness in western culture, and an ubiquitous focus on nutrition and exercise. Originally thought to be caused by genetics and pathological family dynamics, this view was revised with the finding, using longitudinal study designs and social network analyses, that same-gender, mutual friends were most influential in the development of obesity in adulthood, with siblings and opposite-sex friends having no effect (Christakis & Fowler, 2007).

(ii) Marijuana use among adolescents

Substance use amongst adolescents is a major public health issue (Fletcher, Bonell, & Hargreaves, 2008), with a population study conducted by the Center for Disease Control and Prevention showing that 10 percent of youths reported using illegal substances before the age of 13, with marijuana the most frequently used substance (Chen, Storr, & Anthony, 2009). Peer influence has long been suspected as a stimulus that amplifies risky behaviours in the social network (Clark & Loheac, 2007; Lundborg, 2006).

Using the National Longitudinal Study of Adolescent Health (Add Health) (n=20,745) representing a sample of adolescents from grades 7-12 in 132 middle and high schools in 80 communities across the USA examined the influence of peer networks in the uptake and continued use of marijuana. The peer group was identified by the nomination of close friends and classmates within a grade were used to identify the broader social network from which friends were chosen (Ali et al., 2011).

Results showed that for every increase in marijuana use of 10 percent in adolescents in a close friend network increased the likelihood of marijuana use by two percent. An increase of 10% in usage in grade peers was associated with a 4.4 percent increase in individual use. Reporting a good relationship with one's parents, living in a two-parent household and being religious were protective against marijuana uptake. When peer selection and environmental confounders were held constant, increases in close friend and classmate usage by 10 percent both resulted in a five percent increase in uptake in individuals within those networks

(iii) Non suicidal self-injury (NSSI)

NSSI is defined as a deliberate self-inflicted attack on one's own body without suicidal intent. It excludes cultural practices such as ear piercing, tattooing, or circumcision, most of which are performed by others. NSSI is defined as socially contagious when at least two people in the same group inflict NSSI within a 24-hour time period. The social contagion of NSSI has been reported in a variety of 'closed' social networks such as in inpatient units, prisons, group homes, and special education schools, as well as in community samples of adolescents, young adults and college students (Jarvi, Jackson, Swenson, & Crawford, 2013).

Adolescence (onset between 12 and 14 years) and early adulthood are high-risk developmental periods for NSSI (Lloyd-Richardson, Perrine, Dierker et al., 2007). Between 14% and 21% of high-school aged adolescents report engaging in NSSI, with higher estimates (30%-40%) for adolescent psychiatric populations (Muehlenkamp, Hoff, Licht, Azure & Hasenzahl, 2008).

More recently, social media has been identified as an important conduit for social contagion of NSSI among young people. Platforms such as Instagram have high-frequency occurrences of pictures from adolescents who have self-harmed. When associations between characteristics of pictures (e.g., seriousness and type of the self-injury) and comments (e.g., supportive, empathic, negative, offers of help) and weekly and daily trends of posting were analyzed, patterns emerged suggesting social contagion. For example, the more serious injuries attracted more views and comments. Social reinforcement, imitation and modelling of NSSI through social media are the possible mechanisms whereby young people increase their risk of engaging in NSSI through digital means (Brown, Fischer, Goldwich, Keller, Young, & Plener, 2018; Fulcher, Dunbar, Orlando, Woodruff, & Santarossa, 2020).

(iv) Suicide

Although social ties are generally protective against loneliness, depression and suicide, social ties can be toxic and can amplify the risk of psychopathology in members of a social network (Christakis & Fowler, 2008). Exposure to the suicidal ideation or suicide attempts of significant others increases the risk of suicidality in other network members (Abrutyn & Mueller, 2014). Experiencing self-harm or suicide at close quarters may erode the emotionally regulating effects of normative moral precepts against such behaviour (Mueller, Abrutyn, & Stockton, 2015). When vulnerable individuals share “ecologically bounded spaces” (p. 205) like schools or the family home, this may increase suicide contagion if social relationships within those spaces are psychopathological. Our emotional connections to members of our social networks is the mechanism through which social learning and the development of normative behaviours and attitudes are built. However, negative emotions are more “contagious” and thus exert a greater impact on members (Turner, 2007).

Celebrity suicides also trigger spikes in suicide rates, with the greater visibility of the celebrity and prolonged coverage of the suicide triggering higher spikes and longer duration of

elevation of rates of suicide amongst fans (Fu & Chan, 2013; Stack, 2005). Durkheim (1951) highlighted the phenomenon of suicide outbreaks or "point clusters" defined as "temporally and geographically bounded clusters" such as gaols, regiments, monasteries, psychiatric wards, and First Nations reservations (Mueller et al., 2015, p. 206). Individuals in such networks share a collective identity that appears to heighten subsequent suicides following the suicide of the first decedent (Niedzwiedz, Haw, Hawton, & Platt, 2014).

Perhaps one of the most compelling studies on the social contagion of suicide is the study of celebrity suicides by Ha and Yang (2021). This study tracked the suicides 10 days before a well-publicised celebrity suicide and then the suicides 10 days after the suicide was reported in the media. Figure 2 presents these data graphically.

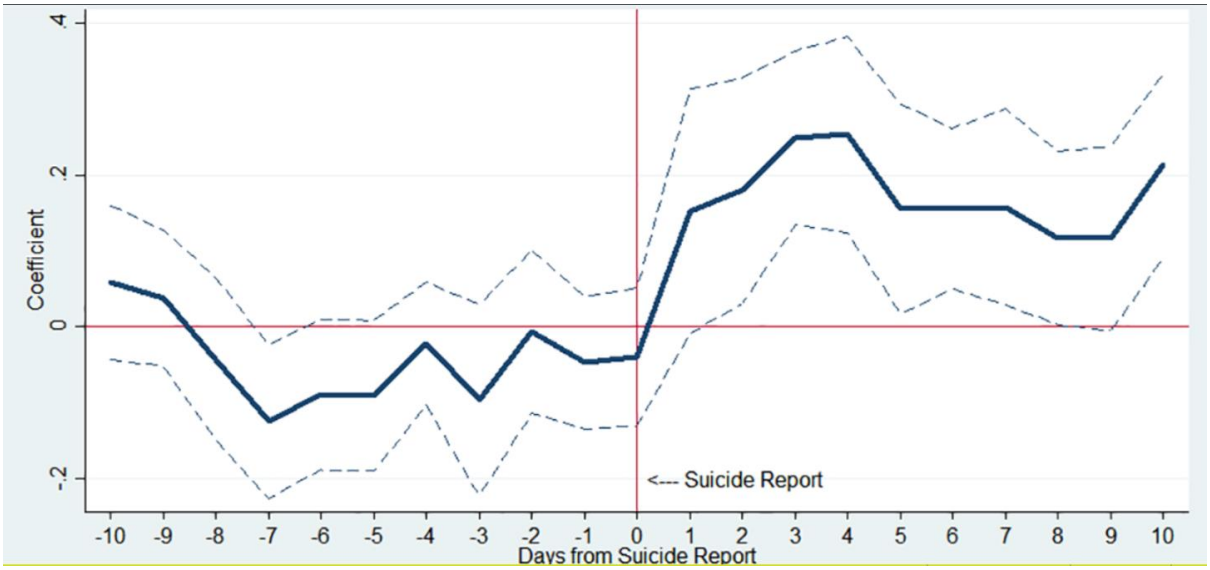

Figure 2[7] Suicide trends before and after reporting of a celebrity suicide

The sharp increase in suicides following celebrity suicide was mostly accounted for by suicides in the 10–29-year age group, the age group. Figure 3 shows the trends.

[7]The *y*-axis indicates an approximate percent change in public suicide by corresponding day

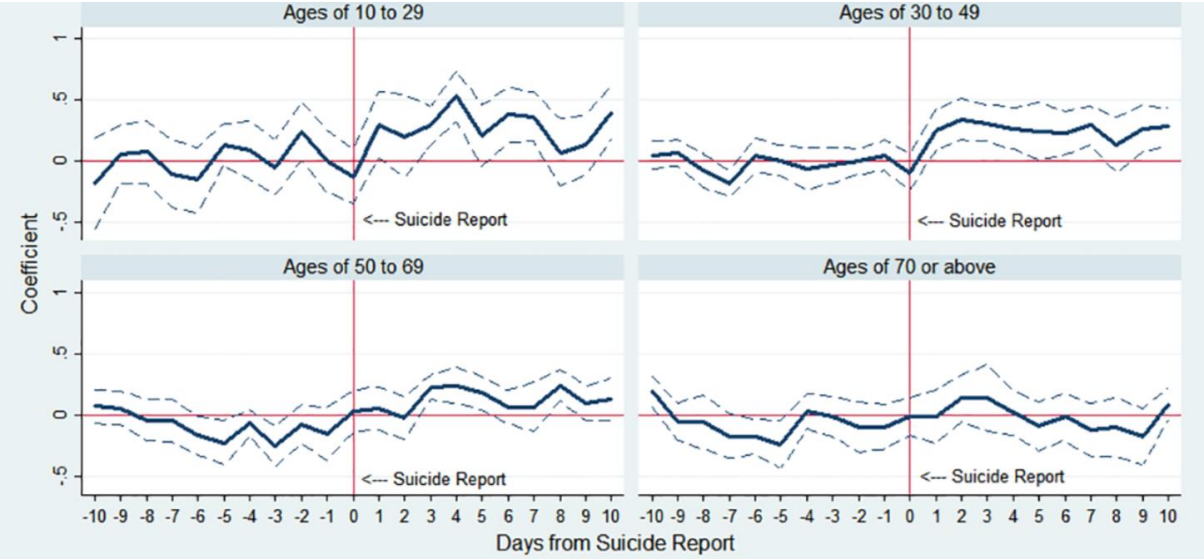

Figure 3 Suicide trends by age group

When the data are segmented by sex (Figure 4), the figures show that females are more susceptible to social contagion than males. The is exactly the same pattern of social contagion we are witnessing in gender dysphoria – young females aged between 10 and 29 years. Is this a coincidence?

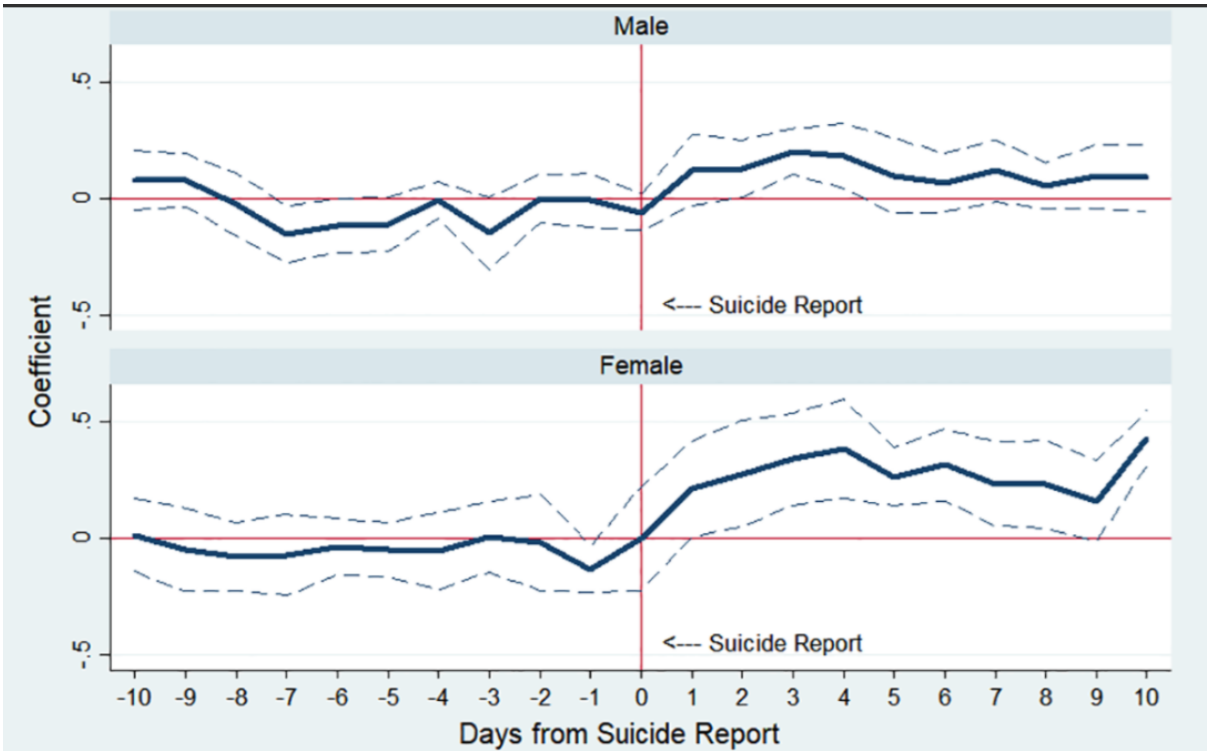

Figure 4 Suicide trends by sex

A well-documented example of a suicide "echo" cluster (an identical suicide cluster occurring within 10 years of a first cluster) occurred in two high schools in Palo Alto that, between them, had suicide rates four to five times higher than the national average. In 2009, three students committed suicide in a nine-month period by stepping in front of a commuter train. A fourth student committed suicide by hanging. In 2013 a mental health survey showed that 12 percent of students from these schools had seriously considered suicide in the previous 12 months. Thereafter, there was another spate of suicides, with three students taking their lives within three weeks of each other. A fourth committed suicide four months later by jumping off a tall building and a fifth followed shortly afterwards by walking in front of a train. Extreme perfectionism and pressure to excel at school, get into Stanford, make a lot of money, and be ostentatiously successful materially and intellectually were assessed to be far too great a burden for the more vulnerable students to withstand.

Using the same data set as the study examining marijuana use but following up four waves of these participants into adulthood, Wave IV assessed suicidality in young adults aged 24-32. This study showed that holding all other psychological risks constant, those young people having a role model who attempted suicide were more than twice as likely to report suicidal ideation in the following 12 months. Participants who had a friend or family member commit suicide were 3.5 times more likely to attempt suicide themselves compared with those who had no close associate attempt or commit suicide in the same 12-month timeframe. These effects were enduring. Young adults who reported an attempted suicide of a role model were more than twice as likely to report a suicide attempt six years after the role model's attempt compared with their otherwise similar peers. Attempting suicide in adolescence increased suicidal ideation and suicide attempts in young adulthood. Significant risk factors for this association included experiencing emotional abuse in childhood, a diagnosis of depression, and a significant other attempting suicide. Thus, suicide contagion appears to be a significant risk factor for suicide in young adulthood but contagion in this study did not require bounded social contexts.

SOCIAL CONTAGION OF GENDER DYSPHORIA

The UK has reported a 4,000% increase in the number of children presenting to gender clinics over the past 10 years. Similarly, Sweden has reported a 1,500% in the same time period.

Commentators on the burgeoning incidence of young people claiming that they are transgender assert that peer contagion may underlie this ominous trend. However, it has rarely been systematically studied either theoretically or empirically. Given the strong evidence of peer contagion in suicide, substance abuse and eating disorders, especially among adolescents, the role of peer contagion in gender dysphoria demands urgent attention.

If we examine the gender dysphoria epidemic in social network terms, we see several features operating. It is an open-system network with nodes and ties expanding across the oceans to the US, UK, Asia, Europe, Scandinavia, and Australia. Most countries are reporting sharp increases in the number of people seeking services and treatment for gender dysphoria. Many are ramping up services and setting up new gender clinics to cope with demand. This network is highly centralised with only one voice – the transactivist lobby - being heard above the desperate whispers of terrified parents and horrified academics, doctors, psychologists and psychotherapists. Opinion leaders operating at the centre of these networks are very influential. The level of density in a network has two effects – firstly, it enhances the circulation of information between members and secondly, it blocks the introduction of dissenting ideas and evidence (Iyengar, Van den Bulte, & Valente, 2011).

The field is too young to have attracted researchers to undertake social network analyses to assess peer contagion effects in gender dysphoria. Hence, formal empirical studies have not yet been conducted. However, there is evidence from several sources that peer contagion may be a relevant factor in the sharp increases in young people presenting with gender dysphoria.

(i) Low gender typicality, peer victimization, ingroups and the trans-lobby

Low gender typicality (i.e., perceived lack of fit within one's binary gender) has a significant impact on social acceptance within one's peer group (Sentse, Scholte, Salmivalli, & Voeten, 2007). It is strongly associated with adjustment difficulties, behavioural problems, lower self-esteem, and increased internalizing disorders (e.g., anxiety, depression) (Smith & Juvonen, 2017). As children progress to adolescence, peer as opposed to parental acceptance becomes paramount. Peers therefore take over the role of gender socializing agents from parents (Blakemore & Mills, 2014). Adolescent peers tend to be critical of behaviours, dress,

mannerisms and attitudes that are not gender typical as a way of policing and reinforcing gender norms and respond with criticism, ridicule, exclusion and even intimidation of non-conformers (Zosuls, Andrews, Martin, England, & Field, 2016). Research shows that the problems accruing to low gender typicality are mediated by peer victimization and that reducing peer victimization may ameliorate these difficulties (Smith & Juvonen, 2017). Conversely, peer acceptance mediated the self-worth of gender non-conforming 12- to 17-year-olds (Roberts, Rosario, Slopen, Calzo, & Austin, 2013). Gender non-conformity and gender atypicality have also been associated with higher physical and emotional abuse by caregivers (Roberts, Rosario, Corliss, Koenen, & Austin, 2012). Mental health is difficult to sustain in the face of caregiver abuse and peer bullying and victimization (Aspenlieder, Buchanan, McDougall, & Sippola, 2009). Indeed, gender non-conforming and gender atypical youth are at higher risk of depression, anxiety and suicidality in adulthood (Alanko et al., 2009).

It is tempting to speculate that these groups of young people, searching for homophily (i.e., like peers) started to exaggerate their points of difference from their gender-conforming peers rather than to hide and minimize them to avoid being bullied and excluded. In so doing, they left the "outgroup" of nonconformers and formed an ingroup of extreme gender-nonconformers, transcending the gender barrier altogether and declaring themselves transgender. Suddenly, the discomfort and fear of not being gender typical becomes a virtue and rather than fearing the disapprobation of their peers, their open revolt in declaring themselves transgender is valorised by a politically powerful transactivist lobby. One would expect that gender atypical children who feel both internal and external pressure to be gender conforming would experience greater discomfort (Carver, Yunger, & Perry, 2003) and therefore be more susceptible to the message of trans activism.

Ingroups behave in stereotypical ways with respect to outgroups – they favour ingroup characteristics, assigning more positive attributes to its members and derogating outgroups in order to enhance the status of their ingroup (Leyens et al., 2000). It is not surprising, then, that members of the transgender ingroup exaggerate the characteristics of the "trans" gender they take on – becoming more "feminine" or "masculine" than heteronormative groups of cismen and ciswomen. Transactivist groups have proliferated and consolidated in a short time frame by exploiting the characteristics of ingroups and outgroups. For example, social

projection (i.e., the belief that other members of the group are similar to oneself) has been a powerful integrating process that simultaneously creates protection for its own members and distance from outgroup members, using the formula, "if you are not with us, you are against us" – those disagreeing with the ideology of the trans-lobby are labelled "transphobic" and publicly denounced.

(ii) Rapid onset gender dysphoria (ROGD) and the role of social media

The upsurge in rapid onset gender dysphoria (ROGD) tends to occur mostly in girls at around the age of 14 years, which is an age identified by developmental psychologists to be particularly susceptible to peer influence (Steinberg & Monahan, 2007). For example, a study of peer contagion for risky behaviours found that exposure to risk-taking peers doubled the amount of risky behaviour in middle adolescents, increased it by 50% in older adolescents and young adults, and had no impact on adults (M. Gardner & Steinberg, 2005). This group of young people were likely to belong to peer groups in which one or more of their friends had become gender dysphoric or transgender identified. Their coming-out announcement to parents also tended to be preceded by recent increases in their daughters' social media and internet usage. It is only a small step to understanding the social contagion of ROGD in this age group.

Lisa Littman (2018) canvassed the perceptions of parents who had children who displayed ROGD during or just after puberty. There were 256 respondents, of whom 83% had daughters, with a mean age of 15.2 years when they declared themselves transgender,41% of whom had previously expressed a non-heterosexual sexual orientation, and 62.5% of whom had received a diagnosis for a mental health disorder (e.g., anxiety, depression) or a neurodevelopmental disability (e.g., autism spectrum disorder). Thirty-seven percent (37%) of these young people belonged to peer groups with other members identifying as transgender. Parents also reported a decline in their child's mental health (47%) and relationship with parents (57%) after declaring themselves transgender. Thereafter, they preferred transgender friends, websites, and information coming from the transgender lobby.

An indicative case study was written up in an article for *The Atlantic* by Jesse Singal (2018), in which a 14-year-old girl decided she must be trans because she was uncomfortable with her body even after she restricted her food intake, was finding puberty uncomfortable, had

difficulty making friends, was feeling depressed and was lacking in self-confidence. Against this backdrop of woes, she came across MilesChronicles[8], the website of an omnipotent and histrionic transboy, now a young transman. Watching this video resulted in Claire pouring all her sadness and unease about herself into the "realisation" that she was really a "guy." Miles made transitioning appear easy and simple, was effusive in his praise of his new self and supportive of others to follow suit. This is a very common scenario reported by parents of teenage girls with ROGD.

Such websites, all easily accessible to vulnerable adolescents, can have a very persuasive effect on viewers. Recent studies show that contagion is enhanced when the influencer is perceived to have high credibility and reduced when the influencer is perceived to have low credibility. A similar effect is observed if the influencer belongs to an out-group or an in-group (Andrews & Rapp, 2014). Miles is the quintessential trans pinup icon with a "You can be just like me if you transition!" message.

Following YouTube posts and social media with respect to the transgender debate over the past few years, I have noticed that posts that depict young people struggling with their gender identity or questioning their decision to take puberty blocking agents and cross-sex hormones, or to undergo what is euphemistically called sex reassignment surgery are rapidly taken down so that only a homogenous message that matches the strident messaging of the transactivist lobby is on display in the ether.

A recent Swedish study[9] tracked referrals and attendances at gender clinics of young people following major media events related to transgender health care in 2019. One event was positive, and two media events [i.e., the airing of "The Trans Train and the Teenage Girls,"[10] a 2-part documentary series broadcast on April 3, 2019 (event 2), and October 9, 2019 (event 3)] determined as negative portrayed gender transition as dangerous and damaging. In the three months following one of the negative media events, referrals decreased by 25% overall – there was a 32% reduction in female referrals - and by 25% for young people aged 13-18

[8] MilesChronicles - YouTube

[9] Indremo, M., Jodensvi, A. C., Arinell, H., Isaksson, J., & Papadopoulos, F. C. (2022). Association of media coverage on transgender health with referrals to child and adolescent gender identity clinics in Sweden. *JAMA network open*, *5*(2), e2146531-e2146531.

[10] . Mission: Investigate. The trans train and the teenage girls. Tranståget och tonårsflickorna. Video in Swedish. Swedish Public Service Television Co. April 3, 2019. Accessed December 28, 2021. https://www.svtplay.se/video/ 21717158/uppdrag-granskning/uppdrag-granskning-sasong-20-avsnitt-12

years. On the contrary, increased positive media coverage of trans issues resulted in an increase in referrals to gender clinics[11].

Nonetheless, a statement released in August 2021 by the Coalition for the Advancement & Application of Psychological Science (CAAPS)[12] called for the elimination of the use of Rapid-Onset Gender Dysphoria (ROGD), "given the lack of rigorous empirical support for its existence," although this evidence abounds (see next section on empirical evidence). Deplorably, CAAPS did not see fit to question the exponential increase in the adolescent trans phenomenon, both in declarations and referrals to gender clinics across the globe[13] nor how these new referrals differed substantially in profile from previously recorded demographics of transgender young people along dimensions of age of onset, sex ratio, comorbid mental health issues[14] and clustering.

EMPIRICAL EVIDENCE

In recent decades, there has been an unmistakably sharp increase in the population estimates of young people identifying as transgender. A retrospective analysis[15] (Figure 5) of the pattern of referrals to gender clinics from 1976 to 2011 is instructive in demonstrating the shifting

[11] Pang KC, de Graaf NM, Chew D, et al. Association of media coverage of transgender and gender diverse issues with rates of referral of transgender children and adolescents to specialist gender clinics in the UK and Australia. JAMA Netw Open. 2020;3(7):e2011161. doi:10.1001/jamanetworkopen.2020.11161

[12] https://www.caaps.co/rogd-statement

[13]de Graaf, N. M., Giovanardi, G., Zitz, C., & Carmichael, P. (2018). Sex ratio in children and adolescent referred to the Gender Identity Development Services in the UK (2009–2016) [Letter to the Editor]. *Archives of Sexual Behavior, 47,* 1301–1304;

Frisén, L., Söder, O., & Rydelius, P. A. (2017). [Dramatic increase of gender dysphoria in youth]. Lakartidningen. Retrieved from http://lakartidningen.se/Klinik-och-vetenskap/Klinisk-oversikt/2017/02/Kraftig-okning-av-konsdysfori-bland-barn-och-unga/.

Kaltiala-Heino, R., Sumia, M., Työläjärvi, M., & Lindberg, N. (2015). Two years of gender identity service for minors: Overrepresentation of natal girls with severe problems in adolescent development. *Child and Adolescent Psychiatry and Mental Health, 9,* 9.

[14] Aitken, M., Steensma, T. D., Blanchard, R., VanderLaan, D. P., Wood, H., Fuentes, A. … Zucker, K. J. (2015). Evidence for an altered sex ratio in clinic-referred adolescents with gender dysphoria. *Journal of Sexual Medicine, 12,* 756–763.

Ashley, F. (2019). Shifts in assigned sex ratios at gender identity clinics likely reflect changes in referral patterns [Letter to the Editor]. *Journal of Sexual Medicine, 16,* 948–949.

Becker, I., Gjergji-Lama, V., Romer G., & Möller, B. (2014). Characteristics of children and adolescents with gender dysphoria referred to the Hamburg Gender Identity Clinic [German]. *Prax Kinderpsychol Kinderpsychiatr, 63,* 486–509.

Littman, L. (2018). Parent reports of adolescents and young adults perceived to show signs of a rapid onset of gender dysphoria. *PLoS ONE, 13*(8), e0202330.

[15] Wood, H., Sasaki, S., Bradley, S. J., Singh, D., Fantus, S., Owen-Anderson, A., ... & Zucker, K. J. (2013). Patterns of referral to a gender identity service for children and adolescents (1976–2011): age, sex ratio, and sexual orientation. *Journal of Sex & Marital Therapy*, *39*(1), 1-6.

patterns of presentations of young people to gender clinics. The sample comprised 577 children aged 3-12 years and 253 adolescents aged 13-20 years. Prior to around 2000, the child referrals greatly exceeded referrals of adolescents. After that time, there was a steep and significant increase in adolescents. Also of interest is that the overall sex ratio of male to female children was 4.5:1 (boys:girls). For three-year-olds the ratio was 33:1 (boys:girls). The ratio dropped to 3.4:1 in the last cohort of children (2008-2011). The adolescent sex ratios were at parity but by 2008-2011 girls exceeded boys.

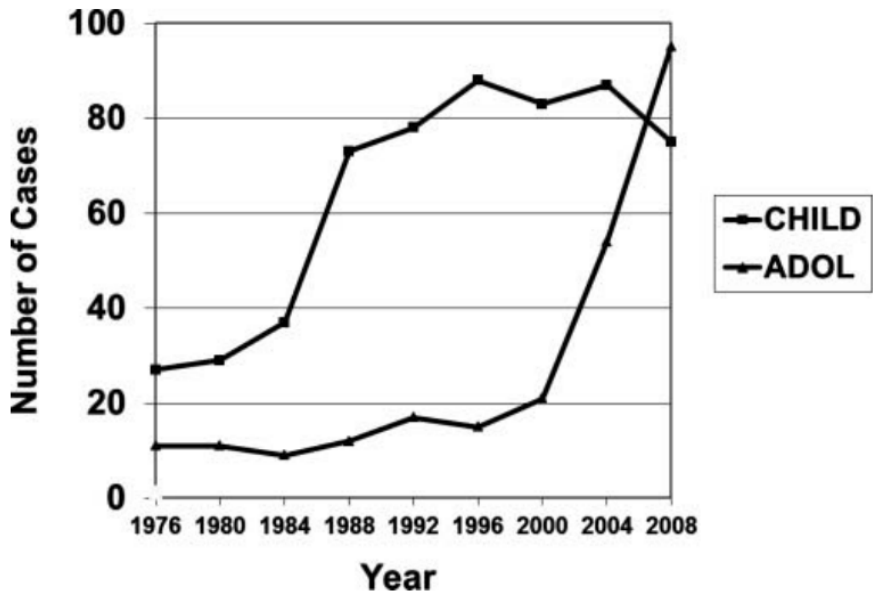

Figure 5 Number of children and adolescents referred to gender clinics 1976-2011)

For the adolescents in this study, data on sexual orientation were available for 248 participants. Using standardized measures[16] to assess heteroerotic and homoerotic sexual orientation in fantasy, 76% of the girls were classified as homosexual compared with 57% of boys. These figures vastly exceed population estimates of homosexuality and begs the question as to whether many young people presenting to gender clinics are confused about their sexual orientation, experience socialized and/or internalized homophobia or do not understand the difference between gender identity and sexual orientation.

[16] Zucker, K. J., Bradley, S. J., Owen-Anderson, A., Kibblewhite, S. J., Wood, H., Singh, D., & Choi, K. (2012). Demographics, behavior problems, and psychosexual characteristics of adolescents with gender identity disorder or transvestic fetishism. *Journal of Sex & Marital Therapy*, *38*, 151–189.

Another study, a meta-regression of population-based probability samples provides compelling evidence of this trend, where estimates have more than doubled in the space of eight years from 2007 to 2015 (See Figure 6).

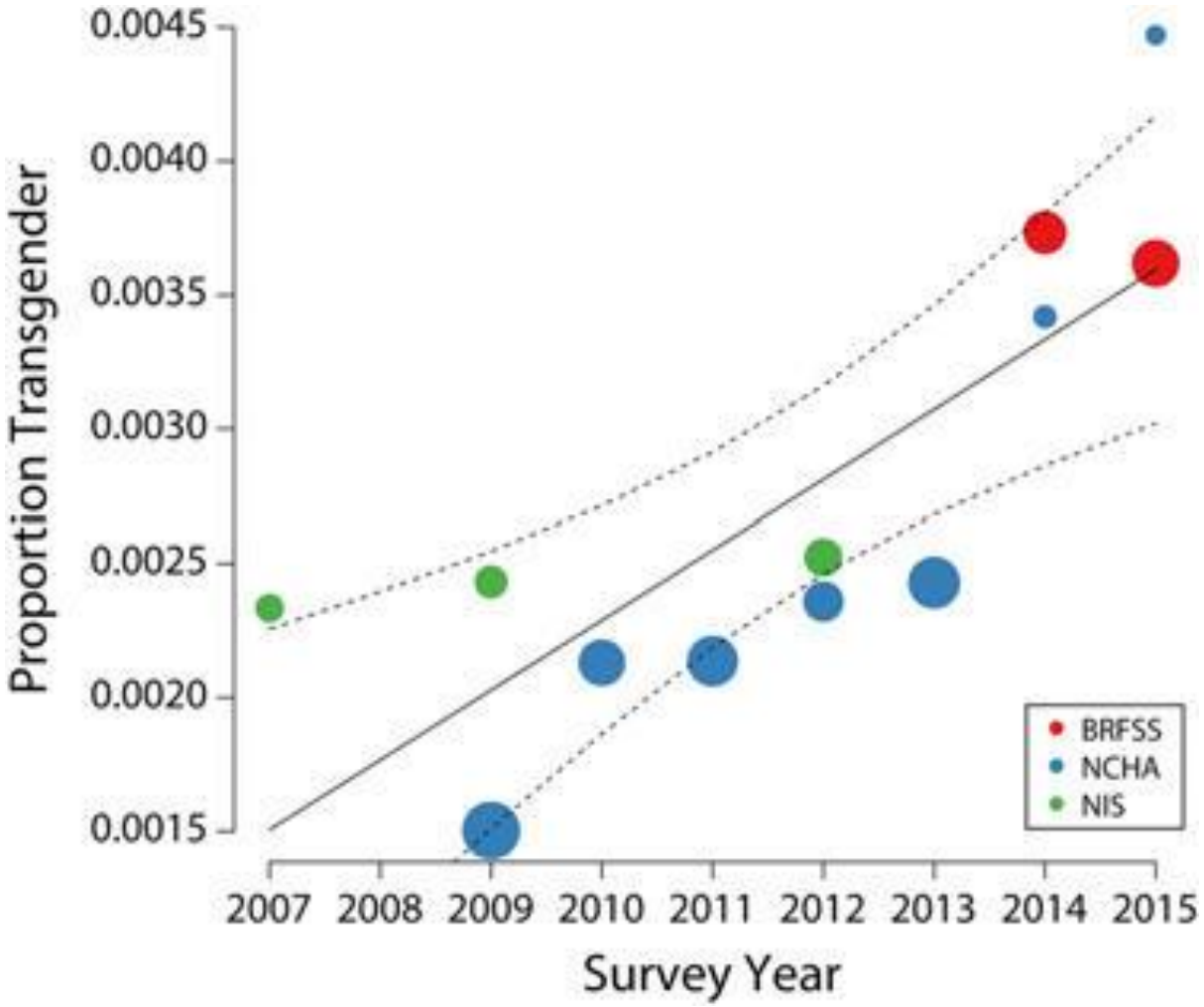

Figure 6[17] [Source: Meerwijk & Sevelius (2017)]

Similarly, upward trajectories of enrolments in GD clinics have been observed in the UK and Australia. Figure 7 summarizes the trends.

[17] Meerwijk, E. L., & Sevelius, J. M. (2017). Transgender population size in the United States: a meta-regression of population-based probability samples. *American Journal of Public Health, 107*(2), e1-e8. https://ajph.aphapublications.org/doi/pdfplus/10.2105/AJPH.2016.303578

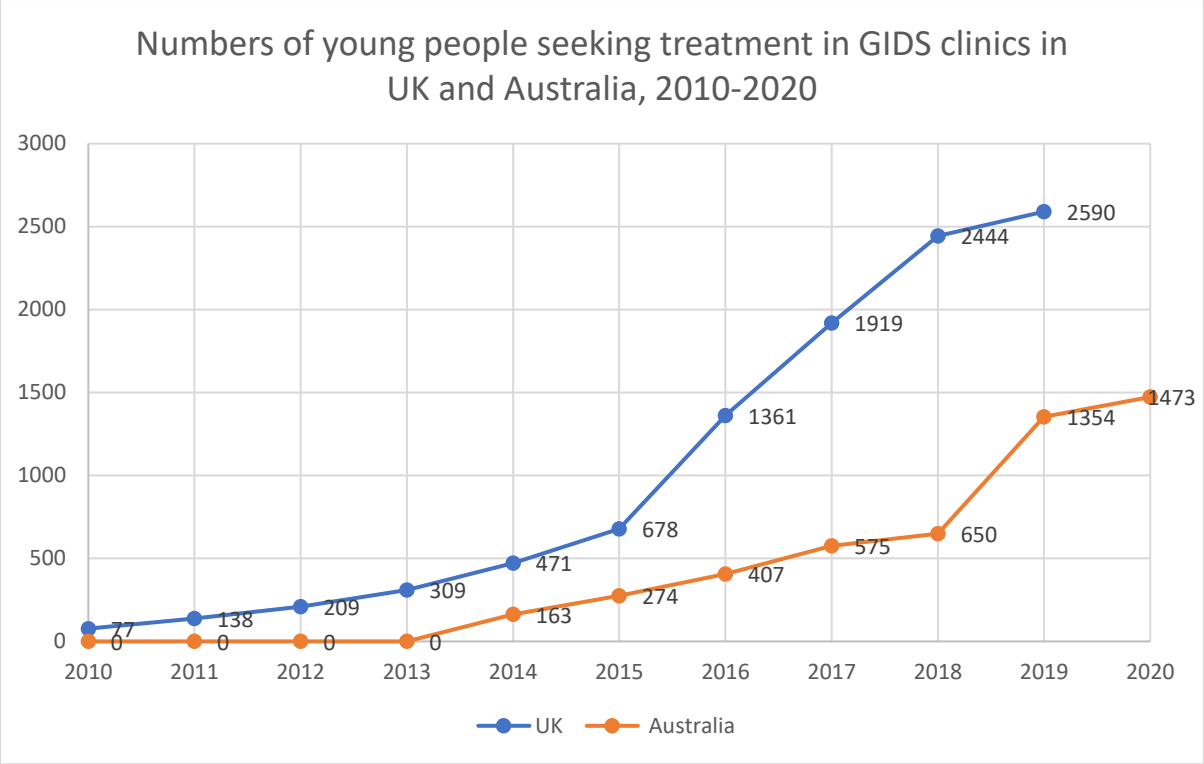

Figure 7

Source: Kenny, D.T. (2021). Australian data provided by the gender clinics under freedom of information applications

Perusal of the UK graph indicates a doubling of the number of referrals in 2015-2016 compared with the previous year. There is a continuous, but less steep increase until 2017, which is followed by a slowing of referral growth rates between the two years 2017-2018 and 2018-2019.

In each of these samples, these numbers would comprise two groups of young people, a core group of “actual” cases and the additional cases created by social contagion. Within the actual cases, there would be the group who declared themselves and a group of latently gender dysphoric young people who have not felt able to declare themselves until recently because of greater community acceptance and support from the transgender lobby and social media. This latter group of “actual” cases and the ROGD group have both been affected by social contagion.

Further analysis is required to determine the nature of the clustering of these increased numbers. In school-aged children, one would expect to see multiple cases in particular high schools. If gender dysphoria referrals occurred independently of each other, one would

expect to see referrals per high school follow a Poisson distribution, in which the variance is equal to the mean. A clustering effect would be hypothesised if the variance were greater than the mean. The strongest indicator of social contagion would occur if the ROGD young people showed strong clustering effects. Evidence that this may in fact be the case is provided by the distribution of new referrals by age and sex in the GIDS sample (Tables 2 and 3), where new referrals in the 12–16-year group far exceeds those in younger and older age groups.

Table 2 Age at referral to GIDS, UK in 2018-20

Age at referral	Number of referrals
3 and 4	10
5	21
6	21
7	42
8	34
9	43
10	59
11	78
12	135
13	331
14	511
15	529
16	474
17	88
18	30

Source: NHS (2019)

Age groups segmented by sex show much larger proportions of females seeking gender transition – for 13-year-olds, girls accounted for 86% of referrals, for 14-year-olds, girls accounted for 82% of referrals and for 15-year-olds girls accounted for 76% of referrals.

Table 3 GIDS figures from England by sex at birth

Age	2019-20, England only		
	Assigned sex at birth		
	AFAB	AMAB	Not Known
3 and 4	<5	<5	0
5	5	12	0
6	7	9	0
7	13	16	<5
8	17	24	<5
9	24	21	<5
10	22	32	0
11	52	23	6
12	127	37	5
13	270	45	11
14	404	90	16
15	470	152	31
16	350	162	24
17	101	67	10
18+	30	28	<5

Data from Australia (Figure 8) also show an upward trajectory in the number of children enrolled in gender clinics in the five states of Australia that offer a gender service over the period 2014-2020.

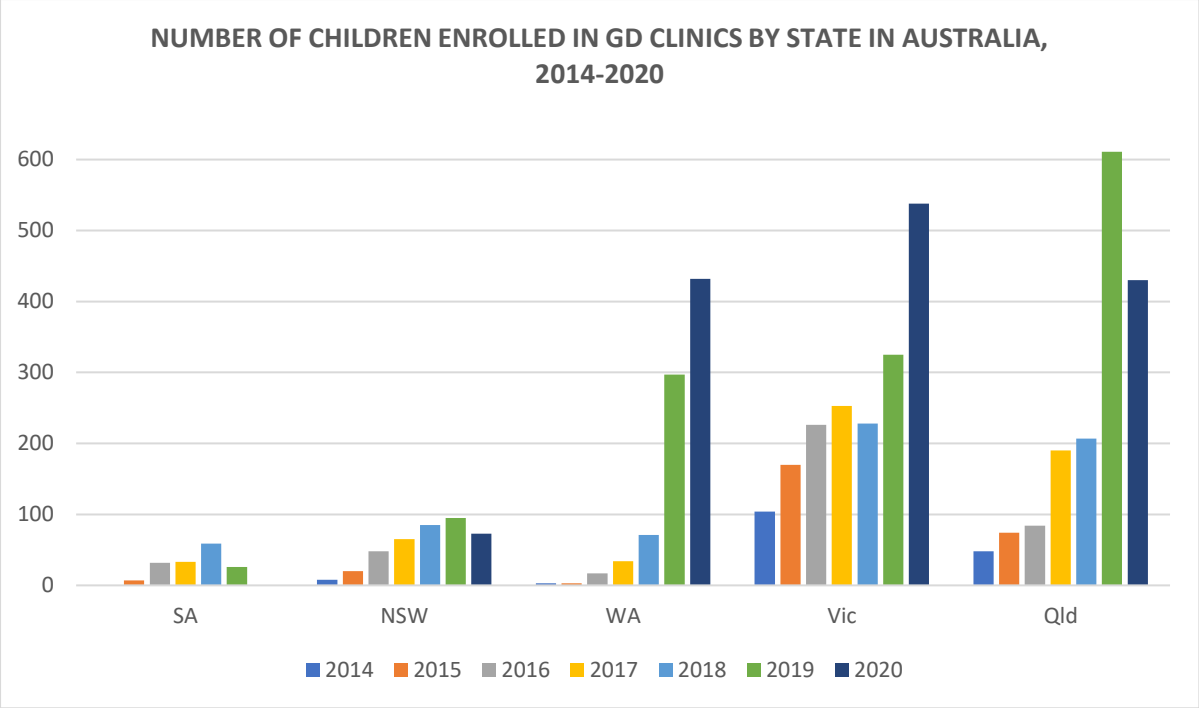

Figure 8

Source: Kenny, D.T. (2021). Data provided by the gender clinics under freedom of information applications

The noteworthy feature of this graph is that three states (WA, Queensland and Victoria) show similar increases over the five-year study period (2014-2020), although Queensland showed a downturn in 2020. While figures in NSW increased, the magnitude of absolute numbers was significantly lower than for the other states. Overall, Victoria had the largest numbers. It is also a state where the trans lobby has been particularly vocal, where the concept of the "safe schools" policy was conceived and implemented, and where the gender clinic at the Royal Children's Hospital, Melbourne has assumed the mantle of trailblazer in the gender transition enterprise in Australia.

Figures from the Nordic countries[18] show very similar patterns as those described above. See for example, Figure 9 below.

[18] Kaltiala, R., Bergman, H., Carmichael, P., de Graaf, N. M., Egebjerg Rischel, K., Frisen, L., ... & Waehre, A. (2020). Time trends in referrals to child and adolescent gender identity services: a study in four Nordic countries and in the UK. *Nordic Journal of Psychiatry*, *74*(1), 40-44.

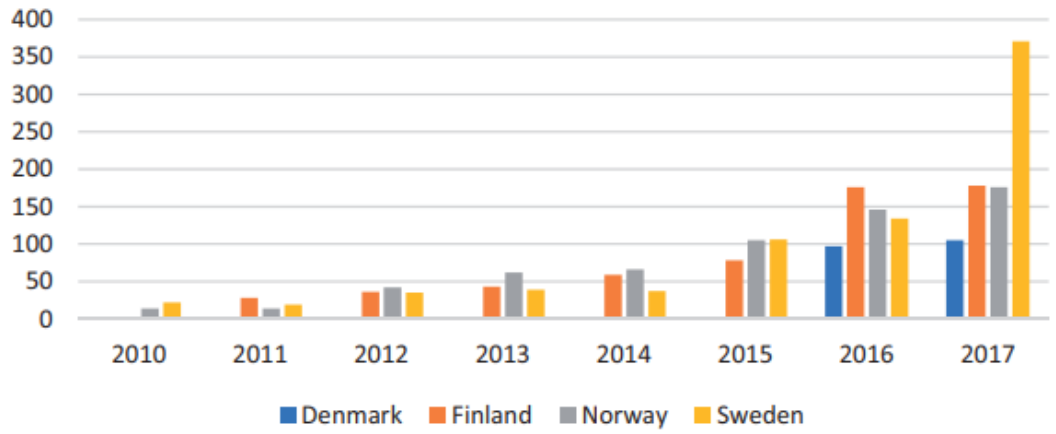

Figure 1. Referrals to child and adolescent gender identity services 2010–2017 in four Nordic countries.

Figure 9

Table 4[82] shows the dramatic increases in just a six-year time frame between 2011 and 2017 in the four Nordic countries and the UK (for comparison).

Table 1. Population adjusted numbers of referrals to gender identity services for minors in four Nordic countries and the UK in 2011 and 2017.

	2011	2017
Denmark[a]	–	9.0/100,000 (1/11,000)[c]
Finland	2.63/100,000 (1/38,071)[b]	16.7/100,000 (1/10,155)
Norway	1.24/100,000 (1/80,643)	15.6/100,000 (1/6414)
Sweden	0.90/100,000 (1/111,663)	17.4/100,000 (1/5719)
UK	1.25/100,000 (1/79,588)	17.5/100,000 (1/5078)

These population adjusted rates are orders of magnitude higher than those observed in transgender adult populations[19]. Rapid changes in any relevant biological factors that could possibly account for these trends across global populations appears both unlikely and implausible.

Figure 10[20] shows the total number of young people taking puberty blockers and cross-sex hormones over the seven-year study period across Australia.

[19] Zucker KJ. (2017). Epidemiology of gender dysphoria and transgender identity. *Sex Health,* 14(5):404–411.

[20] NSW supplied "0" in each data cell for each of the seven years. A follow-up inquiry to Sydney Children's Hospital Network (Ref No: SCHN18/7854, 6/8/19) indicated "Sydney Children's Hospitals Network (SCHN) does not provide cross sex hormones at The Children's Hospital at Westmead. [O]ccasionally SCHN sees a patient in a cross-over transition phase who has had stage two treatment initiated by an adult physician, as The Children's Hospital at Westmead pharmacy is still providing the patient's treatment in that cross-over phase. However,

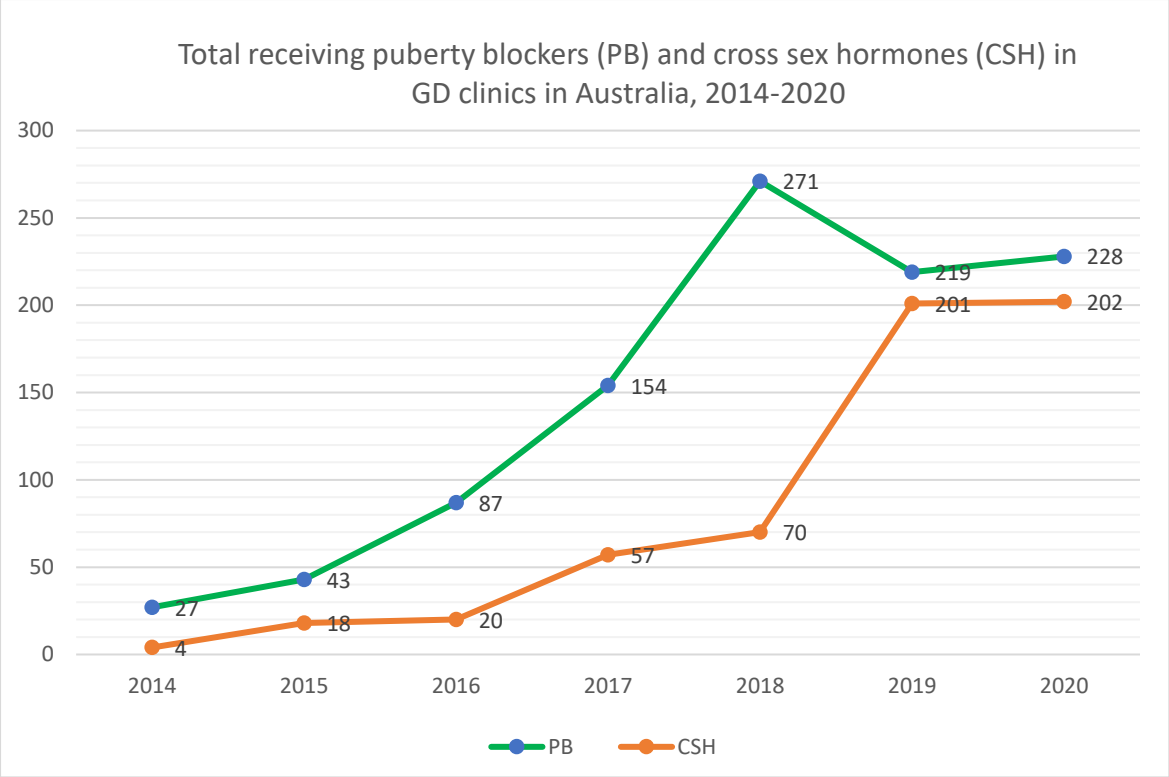

Figure 10

Source: Kenny, D.T. (2021). Data provided by the gender clinics under freedom of information applications

Finally, in case we are left in any doubt about why these numbers have been rapidly increasing over the past 10-15 years, Figure 11 shows the increase in the number of gender clinics across the USA in the past 15 years, from 2007 to 2022.

their primary care at this stage is under the adult physician who prescribes the stage two therapy. The zero-response provided in the GIPA Notice of Decision is correct but that there may be instances in which children are receiving active stage 2 treatment elsewhere while still attending The Children's Hospital at Westmead clinic".

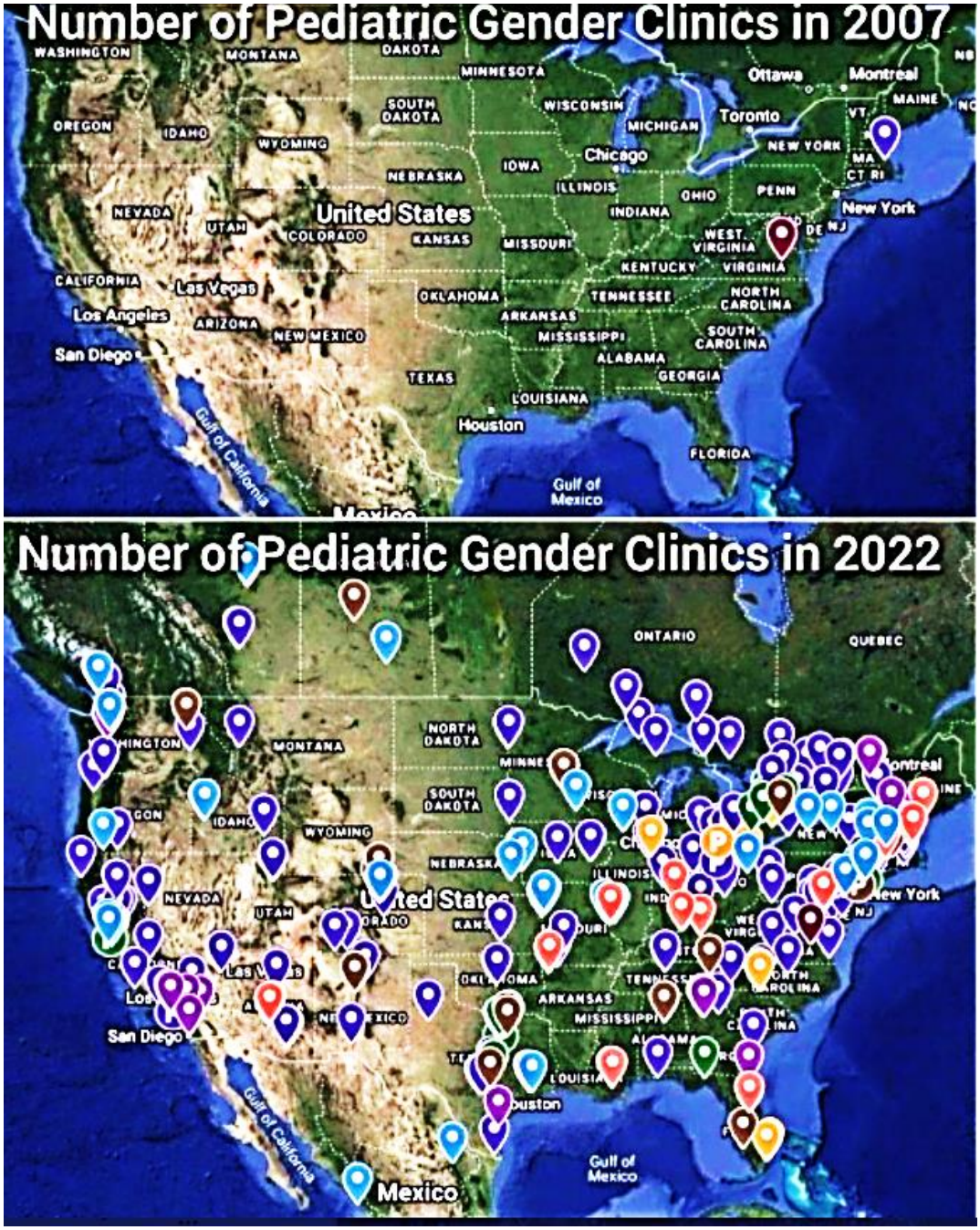

Figure 11 Number of gender clinics in USA and Canada in 2007 and 2022.

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CHAPTER 2

THERAPY FOR TRANSGENDER DECLARING ADOLESCENTS

Abstract

In this chapter, I present a detailed account of exploratory psychotherapy with an adolescent and a number of case studies of young people whom I have treated for gender dysphoria. Through respectful engagement, building of the therapeutic relationship and establishment of rapport and safety, these young people gradually reveal their developmental struggles and strivings, their complex and conflicted interpersonal relationships and growing understanding of their own intrapsychic process that will hopefully equip them to make informed decisions about their lives when they reach the age of majority. To deny young people the opportunity to engage in exploratory psychotherapy when they declare a transgender identity would risk exposing them to iatrogenic harm, which they may come to deeply regret. First, I present a detailed case study demonstrating how family, developmental history and social influences intersect in the formation of a transgender identity. I then present summaries of other cases to demonstrate how factors such as developmental psychopathologies and struggles with sexual orientation problematize young people's endeavours to understand themselves.

INTRODUCTION

The Cass Review[21] into the GIDS (Gender Identity Development Services) in the UK concluded:

> Primary and secondary care clinicians have reported to the Review that they are nervous about seeing children and young people with gender-related distress because of lack of evidence and guidance about appropriate management, and the toxicity of the societal debates. Some clinicians also reported feeling unable to undertake the process of assessment and differential diagnosis that would be the norm in their clinical practice because they perceived that there is an expectation of an unquestioning affirmative approach. They felt that this was at odds with a more open and holistic evaluation of the factors underpinning the young person's presentation, and consideration of the full range of possible support and treatment options.

[21] https://www.bmj.com/content/376/bmj.o629

The report also acknowledges that received medical wisdom about the treatment of young people with gender dysphoria is inappropriate and inapplicable to the young ROGD people currently presenting to gender services, in particular adolescent females who are now accepted to be influenced by the forces of social contagion. These include those with mental health issues, various forms of neurodiversity, and those from dysfunctional and disrupted families.

In a sample of 56 children appearing before the Family Court in Australia for permission to proceed to cross sex hormones, 25 of 39 cases in which family constellation could be discerned lived in single parent families or foster care, with only 14 from two parent families. In this same group of 56 children, 50% had a diagnosed psychological disorder, including six with autism spectrum disorder (ASD), major depression, anxiety, oppositional defiance disorder (ODD), ADHD, or intellectual disability. A recent study has shown a higher prevalence of gender dysphoria in those with ASD[22].

In a sample of 105 gender dysphoric adolescents and using the Diagnostic Interview Schedule for Children (DISC), anxiety disorders were found in 21%, mood disorders in 12.4%, and disruptive disorders in 11.4% of the adolescents. Males had greater psychopathology compared with females, including comorbid diagnoses[23].

Case studies from the public domain

In the early stages of attempting to understand young people identifying as transgender, I studied a large number of publicly available posts that young people had shared on the internet. Close reading of these scripts assisted my own theorizing about the psychodynamics of the transgendering process. Here are some examples:

Alex

Alex (a biological female), aged 12, petitioned the Family Court of Australia to permit her to transition. The Court made orders allowing the commencement of puberty-suppressing

[22] van der Miesen, A. I. R., Hurley, H., Bal, A. M., & de Vries, A. L. C. (2018). Prevalence of the wish to be of the opposite gender in adolescents and adults with autism spectrum disorder. *Archives of Sexual Behavior*. doi: 10.1007/s10508-018-1218-3

[23] de Vries, A.L.C, Doreleijers, T. A. H., Steensma, T. D., & Cohen-Kettenis, P. T. (2011). Psychiatric comorbidity in gender dysphoric adolescents. *Journal of Child Psychology and Psychiatry, 52*(11), 1195-1202. doi:10.1111/j.1469-7610.2011.02426.x

hormone medication because of the intense distress Alex felt at her emergent feminine body. At 17, the Court granted permission for a double mastectomy. Psychiatric evidence indicated a traumatic childhood, in which Alex's mother rejected her completely. However, she had a close and idealised relationship with her father, who wanted her to be a boy and who treated her as such, even teaching her to urinate in the standing position. He died suddenly when Alex was six. Psychiatric evaluation revealed significant early trauma and concluded that "Alex's cross-gender identification appears to have emerged in the context of an idealised, physically close relationship with her father, rejection and abandonment by her mother, and her father's desire for her to be a male … Her investment as male simultaneously expresses anger towards her mother and maintains closeness with her dead father... in the context of her incomplete mourning for him"[24].

Ariel

Ariel, transfemale, aged 13, who had commenced puberty blockers, insisted on being called by the name of a different Disney princess every day, until she settled on the name, Ariel:

> I remember… when everyone was talking about having babies and it really makes me upset. I don't want to tell them to stop talking about it… but it hurts my feelings when they're talking about it… I am like a girl, but can I have the pain of labour? For a lot of people, it is hard for them to understand, but I don't want to burden them with that. Sometimes I just walk away and sometimes I try to get into the conversation, but it's hard". Her remarkably perceptive friend then says, "You can get so close to being a girl but you can't get to that exact point. Is that what upsets you?" Ariel says "Yeah, that's exactly how I feel, the thing with having a baby, I can never be fully there. It is a natural thing that happens. I buy a bra but it's not to hold in my boobs – it is an illusion. It felt like an act, so I feel lost sometimes[25].

Ariel articulates her lived experience of impersonating a girl rather than becoming one or being one. None of the culturally feminine ideals and products with which she surrounds

[24] Kissane, K. (2009). Young people, big decisions. Retrieved 21 May 2018, from https://www.smh.com.au/national/young-people-big-decisions-20090504-arxc.html

[25] (https://www.youtube.com/watch?v=sTfQ44HFu6k

herself can fully convince her that she is female. She acknowledges that it is an "illusion", "an act", and she feels "lost" that a true gender identity eludes her.

A transmale (unnamed)

A transmale, aged 13, had this to say about the role of the internet in his "coming out as trans":

> The internet is the best place for trans people, it is the best place you can go to if you are scared about talking to anyone. TUMBLR Oh, My God! TUMBLR! Youtube too. That's how I found out that I was trans – it was from a youtube video[26]…

This young person appeared to have no caring, empathic adult with whom to share his identity/gender confusion and turned to the internet to seek out like minds, that is, to find his "true" in-group. Seeking and finding membership in a valued in-group enhances self-esteem and feelings of belonging and affiliation (Buck, Plant, Ratcliff, Zielaskowski, & Boerner, 2013). Feeling alienated and marginalised in the "real" world, the virtual world of the internet appears to provide a substitute community missing in the child's real world. However, there is no opportunity to reality-test in such a process, and this young person may have commenced down a dangerous path in order to experience social inclusion. One can also characterize this process as social contagion, since it is likely that the transgender in-group comprise members who are also seeking inclusion and validation in an in-group. For another example of this process[27], in which a young boy says that the internet is "hugely important" particularly when parents are disapproving.

John

John, age 16, transmale,

> For as long as I can remember, I always felt male. I did come out to my parents as lesbian, sometime around seventh grade. I thought, "Oh well, I seem to wear boys' clothes all the time, I feel masculine, and I realise that I like girls, so then I thought, "OK, I must be a lesbian. That was tough. My dad, he wouldn't have any part of it. He said, "This is not a world that you are going to be a part of." Then, when I got to my

[26] https://www.youtube.com/watch?v=sTfQ44HFu6k
[27] https://www.youtube.com/watch?v=eYOuqgoxAik

> freshman year, I identified as trans, so I came out to them again as a transmale. I always had a hard time making friends. I was a very strange kid. I would just feel bad because every day I went to school, I felt like everybody wanted me to go; nobody wanted me there. One of the girls said, "Man, you are an ugly dyke. You are a lesbian." I went from shaky, to unstable, to almost impossible. I started drifting off to a very violent place in my head. I had thoughts of harming my family. It got so bad, I felt like a threat to my family, and to myself. One night, I went down to my mom and said that I wanted her to take me to a hospital; I wanted to get locked up.

This transcript demonstrates the confusion experienced by some young people with gender dysphoria as to their sexual orientation and gender identity, with some believing they are transgender when they are in fact homosexual/lesbian. Existing theories of transgender also conflate these two dimensions, based as they are on a "coming out" model developed for people with lesbian/gay orientations. There has also been a tendency to conflate gender identity with sexual orientation in seeking causal explanations[28].

From these and my own cases, I developed the following intake assessment.

INTAKE ASSESSMENT

A very careful intake assessment of every young person presenting with gender concerns needs to be undertaken. I have developed the following:

i. **Family constellation**, family conflict /dysfunction, marital and sibling dynamics

ii. **Trauma,** physical, emotional, and/or sexual abuse, attachment disorders

iii. **Psychological evaluation** – ADD/ADHD, ASD, learning disability, self-harm, suicidality, suicide attempts, anxiety, depression, incipient BPD, and psychosis

iv. History of **body dysmorphia**, eating disorders

[28] Katz-Wise, S. L., Budge, S. L., Fugate, E., Flanagan, K., Touloumtzis, C., Rood, B., . . . Leibowitz, S. (2017). Transactional pathways of transgender identity development in transgender and gender-nonconforming youth and caregiver perspectives from the Trans Youth Family Study. *International Journal of Transgenderism, 18*(3), 243-263.

v. **School life experiences** e.g., attitude towards school, peer rejection, bullying, truanting, academic performance, post school aspirations

vi. **Cognitive immaturity, concrete thinking, cognitive rigidity, and cognitive distortions**, lack of understanding or misunderstanding of gender ideology and capacity to critically review it (given the illogical and scientifically unsound basis of the ideology)

vii. Perceptions and misperceptions of **gender roles**

viii. **Degree to which there is understanding of the gravity and irreversibility of medical/surgical transition**; what gender affirmation treatment entails, and the consequences of treatment (e.g., infertility, sexual dysfunction, complications of cross-sex hormones and surgery, lifelong patienthood, relationship complexity).

ix. **Sexual experience** history – sexual relationships, sexual abuse experiences, sexual knowledge, sexual anxiety

x. Emerging awareness of **ego dystonic sexual orientation** - > internalized homophobia

xi. **Social contagion** (influence of social milieu e.g., schools, gender clinics, internet, online transgender communities)

xii. **Systemic function of ROGD** e.g., defiance of parents, finding an "in group," being "seen", denying the development of their sexed bodies, fear of adulthood, fear of sexual relationships.

Psychodynamic Formulation

Identity is not hard-wired – it develops in a social world where the young person experiences attachments, trauma, abuse, or misperceives the meaning of experiences because of cognitive immaturity or concrete thinking. Clinicians need to explore identifications (I want to be like…) and dis-identifications (I do not want to be like…) within the family, the peer group, and the social milieu.

The vulnerable (traumatized) part of the self is hated so it is subsumed into the omnipotent self which is the part that suppresses doubts and anxiety and presses for transition. If the traumatized self pushes for recognition of psychic pain, the young person may resort to self-harm and suicidal ideation which is a form of acting out of their self-

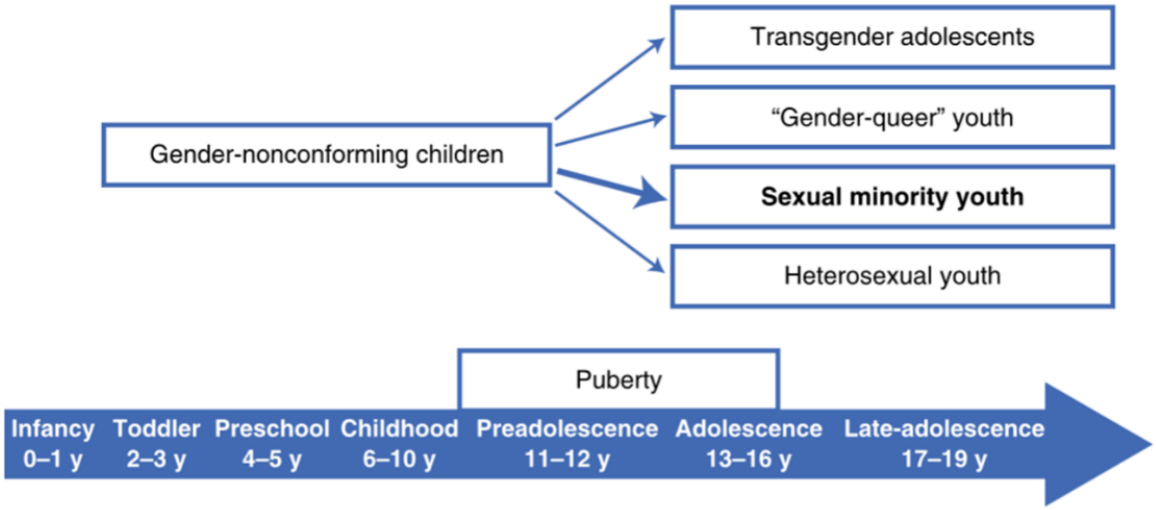
hatred against their bodies. Affirming clinicians collude with the patient's own attacks on the traumatized self by "traumatizing" their young patients' bodies with cross-sex hormones and mutilating surgery. In the hope that transition will restore the young person to an ideal state, medics become omnipotent creators of this ideal state. When this fails, the patient sinks into further self-hatred which is enacted through self-harming and suicidal states.

The majority of GD young people have had very limited life experience. For example, they

i. have had no sexual experience (other than crushes from a distance, hand holding and kissing)
ii. disdain genital sex as "gross"
iii. are indifferent to loss of sexual function and fertility, claiming that they never want to have children
iv. are confused about the nature of "trans" relationships e.g., a self-declared non-binary male (natal sex = male) in a relationship with a transgender declaring natal female (i.e., a trans man) told their parents they were in a gay male relationship. Similarly, two natal females, both transmen, rejected the suggestion that they were a lesbian couple and stated that they were a gay male couple.

It is imperative to keep the developmental path open into adulthood because frontal lobe maturation continues to occur into the early 20s. Further, there are several final trajectories for gender-nonconforming children. The trajectory of gender-nonconforming children varies greatly, and therefore, not all gender-nonconforming children will report persisting gender dysphoria once pubertal changes begin to develop. Prospective studies show that the majority of gender-nonconforming children will report being a sexual minority at some point later in life. An individual child's trajectory may not be known until later in life and it is imperative that this not be disturbed by iatrogenic interference[29].

[29] Leibowitz, S. F., & Telingator, C. (2012). Assessing gender identity concerns in children and adolescents: evaluation, treatments, and outcomes. *Current Psychiatry Reports, 14(2), 111-120*



Psychological trauma from the past forms part of one's psychic structure in the present. The expression of these traumas is socio-culturally embedded, that is, social contagion permits particular forms of "acting out" of these traumas. Envy and rivalry are an integral part of human condition; unconscious envy is a factor in trans identification. GD adolescents need assistance to explore their defences and internal psychic conflicts and to manage their psychic pain before irreparably altering their bodies. "The body is used to act out something that cannot be accepted or processed by the mind." (Evans & Evans, 2021, Ch 2, p. 28). Clinicians should not collude with the phantasy that the "embodied" self can be altered or removed.

Sexual development poses a threat to young people as it signifies approaching adulthood, the demands of which they feel ill equipped to manage. ROGD may be conceptualized as a "trauma" or a response to the reality of puberty that one now has a sexed body. Rigid adherence to peer norms temporarily assuages vulnerabilities because the young person has found others like him/her who are acting out in the same way. The desire for transition could be:

i. related to a grievance against the parents and a struggle for autonomy/individuation
ii. part of a process of identification and disidentification with parents and siblings
iii. related to an idea that one can create an ideal self
iv. protective against feelings of inadequacy, anxiety, jealousy, and disappointment
v. a triumph over feelings of vulnerability
vi. a repudiation of the sexed body and adulthood

DEVELOPMENTAL TRAJECTORIES OF YOUNG PEOPLE DECLARING THEMSELVES TRANSGENDER

Alicia

Alicia was a 14-year-old ROGD adolescent at the time of coming out as trans and starting therapy. She advised her parents that she was a trans male, whereupon they sought therapy for her. Alicia comes from an intact family and is an only child. She has a good relationship with her mother with whom she shares intimate thoughts and feelings and a positive, companionate relationship with her father with whom she shares enjoyable activities. Neither parent is prepared to affirm her, although they have told her that she is loved and wanted. She has been formally diagnosed on the Autism Spectrum, Level 2. Alicia has experienced school refusal, suicidal ideation, depression, peer relationship difficulties, and identity confusion. At the time of writing, Alicia had been in therapy once a week for 18 months. During this time, she had returned to school, recovered from her depression, ceased her suicidal ideation, and started to think about her future.

Developmental history

Alicia's parents had no concerns about her gender development in early childhood. There was one occasion when Alicia was 7 or 8 when told her mother that she wanted to be a boy. She had early puberty at age 10 in grade 4 and this was very unsettling for Alicia, who expressed discomfort with her developing breasts and hips. She wanted to cover up more and changed her clothing preferences.

Alicia was bullied and excluded from peer groups. She moved in and out of peer groups but was frozen out by bullies. She befriended different girls but found out that they did not regard her as a friend – they just allowed her to "hang out" with them. She was "broken hearted".

Alicia was diagnosed ASD in grade 6. Alicia wanted to get her long hair cut off. She started wearing boys' clothes. She was unhappy with her female genitalia. She started questioning her gender and became hyper focused on the internet – into YouTube, Discord, etc. She told her mother she didn't understand why everyone didn't question their gender. Mother closed off access to Reddit and Tumblr.

At the time of referral, Alicia had an online boyfriend (15) who is gay. She has not admitted to him that she is a girl. She thinks she is in a gay relationship. Mother thinks that she has told him that she is intersex and has male genitalia and that she is trans. Her mood improved once this relationship began. They play Minecraft online together, chat about life. Alicia feels guilty about lying to him about her gender.

In year 7 (the first year of high school) a male student liked her, but she didn't pick up the cues. Another boy tried to get someone to have sex with her. He cornered her in the bushes and invited other boys to "fuck" her. It all got reported to school management, boy was suspended, but Alicia she was severely traumatised. She became suicidal and could not get the incident out of her mind, could not go to that space in the school grounds. One day, she climbed the stairs in a school building with the intention of jumping off, but boy(friend) came and distracted her to go to the library. The school got someone to accompany her to classes to keep her safe. She started to school refuse.

Mother said that suicide became Alicia's "go to" to solve her problems, but she is not unduly concerned about her safety. Her main concern is the GD. Mother sees her as her daughter, cannot use the alternative name or pronouns.

Mother thinks her husband is also on the autism spectrum. He loves Alicia but cannot talk comfortably with her. She rarely goes to him with problems.

First month of therapy

Session 1

> I have spent three years trying to figure out my gender identity and why I have gender dysphoria (GD). This year, I have found out and feel comfortable. I have told my parents, but they are not taking me seriously. They have barred me from doing stuff that might help me – they don't understand how I feel about my gender. My friends use my preferred name and pronouns (he/him), but my parents refuse.
>
> My relationship with my parents is good except for the gender issues. We are strained over that – I feel isolated around them. I feel I can't go to them. They give me reasons as to why I shouldn't be trans. I am being encouraged not to explore how I feel because

of what my Mum has read. I want to tell them that I feel mistreated by them for not respecting my chosen name and pronouns.

Most of my classmates are not accepting either; they make jokes about trans people, so I am hesitant about using my chosen name and pronouns at school.

I have online friends I feel close to. Two of them know that I am trans and are accepting. Others don't know but I go by my trans name and pronouns online because it relieves my distress. They are struggling with stuff as well.

I started wondering about my gender when I was 10 which is when I started puberty. I felt something was "off" about myself. I tried to understand it by experimenting with different identities and what felt right for me. I explored them all, but nothing felt right, I couldn't stick to one thing. I was all over the place. I knew about trans people while I was trying to figure myself out. At the beginning of 2020, I finally found an identity that I was looking for but then had trouble expressing that and finding acceptance. At one point, I considered myself non-binary (NB), gender fluid (GF), agender. I landed on non-binary because I don't identify as male or female; GF fluctuates between the poles of male and female. But NB didn't feel right either, thinking of myself as other than male or female. GF felt like something that I had to actively think about all the time. "What do I feel like right now – male or female?" Then I decided that trans felt best for me – it felt like I could recognize who I am – I really wasn't comfortable with being female. Saying that I am trans feels right in the sense that I now know who I am.

As a female, I experienced GD, didn't like my female pronouns, within my peer group at school, I felt very disconnected from girls in my classes, slowly gravitated towards having a male peer group, with whom I felt more comfortable. They don't acknowledge my trans status except when they are making jokes about trans people. At school, I still go by my birth name and female pronouns. My male peer group see me as the only girl in their friend group. One of them reads me as more masculine, sometimes uses male pronouns then corrects himself. Secretly, I don't want him to correct himself but none of them know that I am trans.

Some students in class make awful jokes about trans people, making fun of NB people. In a science class we had to classify salts and gases. Some of them related this to trans categories. I had to sit there pretending that I didn't care about what they were saying. I was on the verge of breaking down, so I left to go to the bathroom. I was crying for the last ten minutes of period in bathroom. They were jabs at me personally. They figured I was part of the LGBTQ community.

Second month of therapy

The only thing that I want at the moment is to transition socially without going through more struggles and to feel more comfortable with myself. I also want to get a binder to feel more comfortable. Mum says no - she says she wants me to be comfortable in my own skin but I can't without doing anything. I wear sports bras and baggy clothing, but sports bras don't help much. My height is a problem because I am short, I am insecure with that. I also have bottom dysphoria – I am distressed at not having a penis. I have to wear loose pants to stop myself from being more aware of it. Having a penis would make me feel more comfortable and more complete.

I am attracted to guys. I have a boyfriend. He knows that I am trans and he genders me correctly. My parents know that I have a boyfriend. He is 15, a year older than me.

I feel vulnerable and distressed at home and school. I would like my parents to be more accepting so that I can come to them with the issues that I am having. I would like to socially transition just in the house, I would feel more comfortable, just around my parents. There wouldn't be too much change. I have a lot of body hair - Mum says that I should shave my legs and armpits, but I prefer not to.

Six months into therapy

I have had some moments doubting my gender identity, sometimes I feel confused that I am faking it and doing it for attention. It comes and goes. It's quite distressing, I want to tell Mum and Dad that I am having doubts and need some comforting words. It is hard to let them know that I am not trans anymore because when I am doubting it is very hard to stay grounded. It feels like a big swamping feeling that I am overwhelmed by, and it is hard to reach out for comfort to them. I am scared that they might take my doubting as a good thing. Mum is OK with other stuff but not for my

gender dysphoria; we are at opposite ends. We can't see eye to eye. There is a lack of understanding about how I am feeling. I talked to her before about my breast dysphoria. I said to her, "I don't like my breasts." My mother then said, "Well, I don't like having fat legs."

Conversation with mother:

What is worthy of note is that Alicia started taking her bra off to sleep while we were on holidays at the beginning of December, and she has kept doing that. She had refused to do that for about a year. Also, she would always hide her breasts with her arms when in the bathroom, going to the bathroom without clothes on, or whatever, but is no longer doing that since sleeping without the bra. She even unzipped her sun shirt while in the pool, which has not happened for a few years. She had swimmers underneath, but normally would never expose herself that much. Four or five days ago, she was upset, but didn't tell me until after, but said it was to do with gender dysphoria and doubting herself. I didn't want to push her, but I took that to mean she doubted she was trans, and that's what was upsetting her - the thought of not being trans.

12 months into therapy

My thinking has changed about the gender issues over time - I feel once again that I am not sure who I am regarding gender. I want to block out everyone else's opinion because it is a life changing issue. Questioning has the potential to be life changing. I am at a point where I feel I have to go through it alone, to avoid multiple opinions. There is no check list that definitively says what you are. I have to step back from everyone and dive deep down into myself to try to know who I am. It is a very tricky experience to try to explain. I feel like I know how I stand, how I perceive myself in terms of gender but there is no way I can know for sure. I might feel one way now and will be treated in a certain way but then I might change my mind.

Alicia's current summation, 18 months into therapy

I have decided that I am a nonbinary male, but I am not necessarily male. My gender is neutral – overall, I am in the middle of thinking about it on a spectrum. I feel that I have now landed on something that feels right; it is the best descriptor for me. I

> previously considered myself trans FtM but now that doesn't fit. I have made peace with it. I have made peace with the fact that I have been born with a female body. I might not like it, but it is my body and the best I can do is try to feel at home one way or the other in it. When I think about medical transition - I will leave that alone until I am 18 and responsible for my own choices. Hopefully, I would have a firm grasp on who I am by then. Medical treatment is risky for people who are going through puberty, and I am too old now to have puberty blockers, so I have decided to get to the end of this, I mean puberty, being a teenager. I don't want to make irresponsible decisions when I am not mature enough to do so. I think I will eventually start testosterone, but not too rapidly. I want more masculine features/characteristics, but I prefer to appear androgynous, more male leaning androgyny. I want to minimize my overtly feminine features that get to me. I expect to shave but not have a bushy beard, maybe minimal hair on my face. I have never grown any facial hair. I don't like having wide hips or a curvy body. I want bulkier arms and bigger hands. My body is "petite" - I don't like that. I am short and insecure about my height. I am 157 cms - that is short compared to my classmates. I am embarrassed that I am so short compared with my classmates. I feel inferior having to look up to them. In my friend group, I am the oldest but also the shortest. I want more respect.

I asked Alicia whether she will get more respect if she looks more androgynous. She replied:

> It is a grey area for me. In terms of feeling respected, I want to feel like myself, like a proper person. Sometimes I am shambling around as some thing and not as any sort of defined me. I really don't like the fact that I have a fanny. I am tolerating the breasts more than the fanny. Having a fanny doesn't feel right or proper. It feels like empty space. It doesn't feel like a part of my body. My ideal body would not include a fanny. I would rather have a willy.

I explained how testosterone would and would not change her body. I told her that it would produce facial hair and a deeper voice but would not increase her height or grow a penis. She was somewhat shocked to hear about these limits of testosterone. She then said, “In that case, I will leave the big decisions until I am 18”.

These statements from this young ASD person highlight how young people's sense of gender changes over time and how dangerous it is for gender clinics to accept their first pronouncements of how they perceive themselves. It also brings into sharp focus the misunderstandings and confusion that can arise. Without careful discussion in a safe space, such misconceptions may never be detected or corrected, and the young person may be left with their erroneous beliefs, the basis upon which they make irreversible decisions about their bodies. It is also noteworthy that a significant proportion (~51%) of young people with ASD express anxiety related to gender while not expressing unhappiness with their biological sex (60%) or a desire to change their biological sex (70%)[30]. It is therefore imperative that anxiety about gender not be used as the determinant for medical interventions in ASD populations.

Jared[31]

Below is a two-year history summarizing the gender identity and sexual orientation trajectory of an adolescent male. Apart from his gender questioning, Jared was an otherwise psychologically healthy young person from an intact family. He loved BMX and scouts, was doing well at school, had friends, both male and female, and two older siblings, including a 23-year-old brother who proved a very useful ally and role model in Jared's treatment.

At the age of 14, Jared came out to his parents as GAY. He soon changed that declaration to BISEXUAL when he experienced a powerful crush on a female classmate. After she rejected him, he came out as TRANS and demanded puberty blockade and cross sex hormones.

In therapy, his demands for transition were strident and incessant. He constantly asked me when I was going to tell his parents that he was competent to give consent and could therefore proceed with his transition.

He shaved his legs, arms, and body hair, grew his hair long, and started to wear eye makeup and nail polish. He ordered female clothing from the internet and wore it secretly in his room. When his parents confiscated these clothing items, his female friends from school lent him

[30] Adesman, A., Brunissen, L., & Kiely, B. (2020). Characterization of Gender-Diverse Expressions and Identities among Youth with Autism Spectrum Disorders. *Pediatrics*, *146*(1_MeetingAbstract), 302-303.
[31] A very similar case has been posted online https://genderclinicnews.substack.com/p/florida-warns-doctors-off-gender?r=130uly&s=w&utm_campaign=post&utm_medium=web

their clothes to wear until I advised his parents to put a stop to this. Teachers at his school started calling him by his preferred name and pronouns until I advised his parents not to allow this.

He became increasingly hostile towards me because I was not advising his parents to allow him to transition. His parents had told him that they were not prepared to act on his desire to transition until they were advised by me that this was the medically and psychologically sound course of action. I told Jared that such decisions required great care and exploration and that we needed to understand more about his motivation for wanting to transition and what it meant in his life. I explained that I needed to be sure that he understood all the ramifications of such treatment and the fact that some aspects were irreversible. He insisted like so many young transgender declaring adolescents that he didn't care about having sex or children so none of that mattered.

Several months after therapy commenced, while still vehemently protesting his trans-female identity, he wrote a letter to his parents apologising for misleading them. He said he now realised that he was not a trans-female but a DEMIGIRL (denoting partial non-binary, partial female gender identity).

He changed this orientation shortly thereafter to DEMIBOY (denoting partial non-binary, partial male gender identity). He stopped trying to deceive his parents with regards to wearing makeup and nail polish and secretly stashed his female clothing obtained illicitly through the internet (with packages delivered to his friends' houses so that his parents did not suspect) into the recycle bin.

Three months later, he again wrote to his parents, telling them that he was only joking about the whole thing and that they were the only people who had taken it seriously.

I advised his parents to eat humble pie to give their son the opportunity to exit the gender maze without losing face.

The next day, shortly after his 16th birthday, he asked his parents to take him for a haircut and to take him shopping for new clothes. He directed them to a barber and a male clothing store. He quietly advised his parents that he now realised that was STRAIGHT.

SOCIALIZED AND INTERNALIZED HOMOPHOBIA

An adolescent realises that s/he is same sex attracted. Finding this unacceptable, due to parental and/or internalized homophobia, the adolescent reasons as follows: Being same sex attracted is bad and shameful. My parents will reject me if I am gay. If I am a boy attracted to other boys, I must be a girl and therefore need to transition so that my attraction to boys becomes heterosexual.

Hossein

Sociocultural issues and parental homophobia

Hossein was aged 15 years when his parents contacted me about their many concerns for their son. He is the elder of two children; he has a nine-year-old sister. The family migrated to Australia from a Balkan country when Hossein was five. They became panicked when Hossein declared that he was transgender and wished to transition immediately.

Hossein was difficult to engage except when talking about his gender dysphoria and pressing his case for transition. He said that his parents were waiting for my assessment before they agreed to any medical treatment. He asked several times each session when I would finish my assessment and advise his parents that he could start taking oestrogen. He was otherwise hard to engage and was sometimes irritated, sleepy, and uncooperative.

Hossein expressed concern about his schoolwork. He had aspirations to study aerospace engineering but was finding senior school maths and physics difficult. He also reported serious attentional problems. I advised his parents to obtain psychometric assessments of his ability, attention, and social skills in order to gain a baseline of his current functioning. Hossein was found to have average intelligence, which was not concordant with his parents' view of him, or his own view, that he was "gifted." I attempted to do some reality testing regarding parental expectations for his academic performance.

Hossein also scored in the clinical range for both attention deficit disorder and autism spectrum disorder. I indicated to his parents that these conditions were priorities for treatment and that the school needed to be informed about the results of psychometric testing in order to better support Hossein at school.

When I explored Hossein's perception of his sexuality and sexual orientation, Hossein disclosed the following:

> I see myself as bisexual. I have feelings for guys and girls, more like a pan-thing. I have had a boyfriend who identifies as male and pan since last year. We get together just the two of us - we visit each other's houses. I guess I would be OK with being gay. For me, it fluctuates.

Of his mother, Hossein said:

> Mum knows I have this friend. She doesn't know that he is my boyfriend. I don't think Mum will take it well because she asked me if I still liked girls. She wouldn't take kindly to knowing I have a boyfriend.

Of his father, Hossein said:

> Dad is trying to suppress his queer phobia, but he says bad things about LGBTQ. He is anti it all; he got angry with me for refuting what he was saying. Dad said gay is about anal sex and that is gross. Then Mum told him to shut up and I went to my room and cried. Dad is anti queer for sure, he tries to suppress it because he still loves me. I felt very disappointed in Dad when he expressed these sentiments. He will be very freaked out if he thinks I am queer, gay, or trans.

This is a [….] family who speak [….] at home. [….] culture is homophobic. In a family meeting, I tentatively prepared his parents for the possibility that Hossein's sexuality may eventually resolve as homosexual and that if that were the case, they would need to resolve their own antipathy to homosexuality in order to support their son.

Declaring oneself transgender in this sociocultural milieu is an attempt to resolve the difficult dilemma of a […] boy being gay. Sadly, transgender identity is preferred to a homosexual orientation in certain Balkan countries and the Middle East.

Hossein was insistent at various times that he was transgender and was impatient to commence his social transition and to obtain prescriptions for cross sex hormones. He was dismissive of the life changing effects of these drugs on his body, was indifferent to the loss of sexual function, and declared that he was not interested in preserving his sperm for later reproduction because he had no intention of having children. Hossein was cognitively rigid

and evinced concrete thinking when discussing his potential transition. He had researched the "facts" about MtF transition but could not discuss them in a nuanced way or accept the possibility that he may be disturbed by side effects or uncertainties about his course of action. He did not wish to proceed with surgery at this time.

In view of Hossein's recently diagnosed ADD, ASD, and uncertainty about his gender identity and sexual orientation, I drew the conclusion that Hossein was not Gillick competent and should not be supported to transition at this time, either socially (i.e., changing his name and pronouns) or through cross sex hormones.

The priority for Hossein was to address his ADD and to get support for his ASD. I referred him to a child and adolescent psychiatrist for a medication review for his ADD and depression. The psychiatrist prescribed methylphenidate and antidepressants. I ceased therapy with Hossein as he refused to engage further because I had not supported his transition and had several further sessions with his parents to assist them to address their homophobia and grief that their only son was, in all likelihood, gay.

Roisin

Internalised homophobia

Roisin is a 15-year-old adolescent attending an exclusive girls' school. She came out as trans to her mother at the age of 14. It seemed like rather a half-hearted coming out. Roisin had not chosen a new name or pronouns and did not seem particularly interested in exploring her new identity. The only change was that she asked her mother to buy her the alternative school uniform, which consisted of trousers and a shirt instead of a pinafore. This did not trouble mother too much as a significant number of the students had opted for this style of uniform.

Roisin's presentation was more consistent with body dysmorphia than gender dysphoria. Roisin complained that her hips were too wide, that her thighs were too big and that her face was the wrong shape although she could not be specific about what it was about her normal, symmetrically placed features that were so wrong. Roisin suffered from severe acne for which she was prescribed medication. When her skin cleared up and she appeared in the full bloom of good health, she confided to me that she was not that happy that her skin looked so good. When I inquired why, she replied that now that the focus was taken away from her acne, all

the other "hideous" features of her countenance were in the full glare of the spotlight, and she could not tolerate looking at herself in the mirror or having her photo taken.

Roisin is gifted and had been performing well at school, but teachers had commented recently that she was distracted, disconnected, often "spaced out" and not "with it" in class. She appeared sleepy and often put her head on the desk. In response to a question about how she was sleeping, Roisin responded:

> I am having nightmares about events in my life and about what could go wrong. They are most often about peer interactions. I worry about potential issues related to my peers judging me, exposing me as gay. I wake up in a panic about who is talking about me. There are a few girls in my class who won't shut up about LGBTQ issues. They are really obnoxious and loud, and I always feel as if they are referring to me when they talk about lesbians in a disparaging way. I have thought about asking them not to keep talking about LGBTQ issues all the time, but if I do that, I will be accused of being homophobic. I might risk being ostracized by other girls as well.

Soon after she reported her nightmares, Roisin disclosed that she had been self-harming for about a year.

> Sometimes, I come home from school defeated, nothing in particular has necessarily happened, it is just the constant stress of the environment. I tried sitting with the feeling, but it didn't pass, so I got the reed on my clarinet and scraped and cut my waist and hip. It is still red and angry, it was painful, but it is healing. Other times I use scissors and cut the top of my thighs. I only cut where it is not obvious, and no-one will see it.

About nine months into therapy, Roisin confided that she had a powerful crush on a girl at school but would never act on it for fear of rejection by the girl in question, and peer vilification in general. She was very troubled by the intensity of her feelings and asked me whether she was gay.

I had a very open and scientifically oriented discussion with Roisin about female sexual orientation. I explained that sexual orientation in females appears more likely to change over time. I discussed hypotheses regarding the greater sexual orientation fluidity in females

compared with males that are underscored by biologically based sex differences in foetal hormone exposure and socio-political forces that constrain sexual self-concept, expression, and opportunities differently in women and men. I indicated that while she currently felt strongly same sex attracted, her feelings may well change over time. I explained that many adolescents experienced same sex attractions but mostly reached adulthood as heterosexual. I normalized her feelings and explained that she was not inferior, diseased, or immoral if she were, in fact, gay. Roisin was greatly relieved by our several discussions on female sexual orientation and decided that she would like to share this with her mother.

I coached mother about appropriate responding and reinforced what I had already discussed with Roisin in her sessions. Mother was relieved that Roisin no longer thought of herself as trans and was not at all troubled that she may be lesbian. She said:

> Being gay is biologically based and does not involve self-mutilation or lifelong patienthood at the behest of the medical profession. There are a number of gay people in our extended family, and all are accepted without question. We do not have a problem with it at all.

The disclosure went well, and Roisin was greatly comforted by her parents' easy acceptance of her declaration. However, she is troubled by possible responses from her peer group should they find out (she has no intention of disclosing to them). She continues to struggle with other aspects of her mental health, including a treatment resistant clinical depression for which she has been medicated unsuccessfully.

Professor Dianna Theadora KENNY Mob: [redacted]
E: [redacted]
ABN [redacted]

Professor of Psychology (rtd)
Consultant Psychologist and Psychotherapist

Registered psychologist (No. 0005390)
AHPRA number PSY0001136350, specialist endorsements: developmental, educational and counselling psychology
Medicare Provider No 2876971T

Marriage and Family Therapist (Relationships Australia)

Nationally Accredited Mediator (Australian Dispute Resolution Association)

Family Dispute Resolution Practitioner (No. R1005291) (NSW College of Law)

ABBREVIATED CURRICULUM VITAE

Current	2019 -	Principal, DK Consulting (Psychology, psychotherapy, family dispute resolution, and medico-legal services)
Previous appointments	2013-2019	Hon Professor of Psychology, The University of Sydney
	2006-2013	Professor of Psychology, The University of Sydney
	1988-2006	A/Professor, Senior Lecturer, Lecturer in Psychology, The University of Sydney
	1986-1987	Psychologist in private practice
	1986-1987	Lecturer in School Counselling, School of Counselling and Disabilities Studies, The University of Western Sydney
	1983-1985	Regional Specialist Counsellor for Emotionally Disturbed Children, Liverpool region, Division of Guidance and Special Education, NSW Department of Education
	1978-1983	District School Counsellor, NSW Department of Education
	1976-77	Teacher, Haberfield Demonstration School, Haberfield, NSW

University Qualifications

1988	Doctor of Philosophy (PhD) (Developmental and Educational Psychology), Macquarie University (School of Behavioural Sciences)
1980	Master of Arts (School Counselling), [M.A. (Sch. Couns.)], Macquarie University (School of Behavioural Sciences)
1974	Bachelor of Arts (Honours - Psychology) [B.A. (Hons)] The University of Sydney

Other Qualifications

2016	Postgraduate Diploma in Family Dispute Resolution (PG Dip FDR) (NSW College of Law)
2015	Nationally accredited mediation training – Resolution Institute
1986	Diploma in Clinical Hypnotherapy (DCH), Australian Society of Clinical Hypnotherapists

1982	Certificate in Marriage and Family Therapy, Marriage Guidance Council, N.S.W. (now Relationships Australia).
1977	Associate Diploma in piano, Trinity College of Music, London (ATCL)
1975	Diploma in Education, (DipEd) Sydney Teachers' College

Registrations and Accreditations

Psychology Board of Australia (No.0005390)

Australian Health Practitioner Regulation Agency (PSY0001136350)

Approved Medicare provider (No 2876971T)

Nationally accredited Mediator (LEADR, Australian Dispute Centre)

Family Dispute Resolution Practitioner (NSW College of Law)(Registered with Attorney General Department) (No. R1005291)

Membership of professional societies

Member, Australian Psychological Society: Specialist Accreditations

Academic Member, College of Developmental and Educational Psychologists

Fellow, APS College of Counselling Psychologists

Member, American Psychological Society

Member, Society for Psychotherapy Research

Member, International Association of Relational Psychoanalytic Psychotherapy

Elected Member, New York Academy of Sciences

Member, Australian Dispute Resolution Association

International affiliate, American Psychological Association

Consultancies relevant to psychology and the law, transgender issues in children and adolescents (informed consent, assessment and suitability, family conflict, comorbid conditions), child sexual abuse, sex offending, and sexual misconduct

Expert report writer, Human Rights Law Alliance

Expert report writer, Amicus Briefs for cases occurring in Canada and USA

Expert reviewer/report writer, Office of the Director of Public Prosecutions, Armidale, Gosford, Lismore, Parramatta, Penrith, Sydney, Tamworth, Wollongong

Expert reviewer /report writer, Crown Solicitors' Office, Sydney

Expert reviewer/report writer, Victorian Government Solicitor's Office (VGSO)

Expert reviewer/report writer, Joint Investigative Response Team (JIRT), NSW Police – Blacktown, Chatswood, Coffs Harbour, Manly, Penrith, Tamworth

Expert reviewer/report writer, Health Care Complaints Commission (HCCC) – NSW, Victoria, and Western Australia

Expert developmental psychologist, various Barristers chambers

Assessment psychologist, Aboriginal Legal Service

Research consultant, *NSW Department of Juvenile Justice*

Research consultant, *Justice Health NSW*

Research consultant, *Youth Justice Coalition* (pro bono)

Research consultant, *Public Interest Advocacy Centre* (pro bono)

Consultant investigative psychologist (of alleged child sexual abuse), *St Joseph's College, Hunter's Hill*

Consultant psychologist, *Tribunal of the Catholic Church*

Expert reviewer for Joint Investigative Response Team, NSW Police

- Provide advice and court reports on cases related to child sexual assault, including reports of historical child sexual abuse
- Appraise the quality and plausibility of disclosures made by complainants in cases of current and historical sexual abuse
- Provide literature reviews and advice on the status of recovered memories, the reliability of childhood memory, and memory processes over time and factors that can alter or affect memories
- Provide advice on language development, children's use of and understanding of sexual language
- Provide expert advice on other matters related to criminal offending against children.
- Provide expert advice on the nature of psychopathologies arising from child sexual abuse

Expert developmental psychologist for various Barristers chambers, Crown Solicitor, and Office of the Director of Public Prosecutions

- Provision of expert reports on matters pertaining to child development
    - credibility and reliability assessments of disclosures of child sexual abuse
    - Reasons for delay of disclosures of child sexual abuse
    - memory and language development as it pertains to child sexual abuse disclosures
    - evaluation of "recovered memories"
    - Long term impacts of child sexual abuse
    - Capacity for consent

Court referred clients

- In cases of parental alienation, assess the quality and veracity of accusations of emotional, physical and sexual abuse of children in divorcing couples undergoing family court proceedings for custody and access of the children of the marriage, and report these findings to the court.
- Assess parenting capacity in separating and divorcing parents to ascertain child safety and capacity of parents to undertake shared parental responsibility.
- Where mandated by the court, provide assessment, counselling and therapy for accused fathers and report on the alleged risks to their children while in their care.

Expert reviewer for the Health Care Complaints Commission

- Investigate complaints against psychologists for malpractice and misconduct, including sexual misconduct, and other conduct that falls below the standard expected of the profession.
- Undertake review and critical appraisal of treatments offered by psychologists and whether those treatments have been collusive, coached, suggestive or in other ways biased with respect to issues of child sexual abuse, including historical sexual abuse.

- Evaluate psychologists' psychological practice, evidence-base for therapeutic interventions, and competence in implementing psychological therapies.

- Undertake file review of documents (letters, submissions, complaints, statements, accounts of therapy, therapy case notes) from complainants and defendants, report writing, participation in conclaves, and court appearances.

Consultant Psychologist to the Tribunal of the Catholic Church

- Assessment of marriages for annulment
- Assessment of claims of sexual abuse within marriage and non-consummation of marriage, among other relationship issues.

Research on sexual offending in young sex offenders

- Extensive research undertaken on sexual offending examining life histories and precursors to sexual offending, young offenders' experience of sexual abuse, and other forms of maltreatment for the NSW Department of Juvenile Justice.

Ministerial and other Appointments in Psychology and the Law

2013 Board Member, Daystar Foundation (a foundation for the provision of vocational training and employment to 'at risk' young people)

2003-2009 Chair, Ministerial Steering Committee, NSW Department of Juvenile Justice Collaborative Research Unit

2003-2009 Member, Ministerial Steering Committee on Sexual Offending, New South Wales Department of Corrective Services

2002 A/Chair, Ministerial Reference Group on Sexual Offending, New South Wales Department of Corrective Services

2001 Member, Ministerial Reference Group on Sexual Offending, New South Wales Department of Corrective Services

2003 COCQOG (Commonwealth Cost and Quality of Government): External Reviewer of Psychological Services and Specialist Programs, NSW Department of Juvenile Justice

1996-2002 Deputy Chair, Ministerial Steering Committee, NSW Department of Juvenile Justice Collaborative Research Unit

1997-2003 Chair, Research and Ethics Subcommittee, NSW Department of Juvenile Justice Collaborative Research Unit

Expertise

I divide my expertise into five key areas –

(a) Gender dysphoria (GD) in children and adolescents including a clinical practice working with young people with GD and their parents/families and schools. I bring my decades of experience working with children and families to my practice in working with young people with GD (key areas b, c, d, and e are all relevant to my clinical practice in gender dysphoria).

(b) Child development – including children's social, emotional and cognitive development, assessment of children's attachment to primary care givers, peer relationships, cognitive abilities including intelligence, memory and language; assessment of developmental psychopathologies and behavioural disorders and provision of therapy for same.

(c) Matters pertaining to child sexual abuse, including the disclosure of child sexual abuse, the impact of sexual abuse on children, historical child sexual abuse and its reporting, and issues of repressed or false memory, grooming by paedophiles, and counter-intuitive behaviour.

(d) Matters pertaining to school performance and achievement, psychometric assessment of intelligence, assessment in literacy and numeracy and specific learning disabilities.

(e) Family dispute resolution (I am an FDRP registered with the Attorney General's Department) in which role I asses alleged offences of one parent against another and/or their children in the context of family court proceedings. I report on issues such as access, parental alienation, and child stress in the context of contested divorce and custody disputes.

(a) Gender dysphoria in children and adolescents

I have a busy clinical practice specializing in the treatment of gender dysphoric children and young people, their parents and families. I have contributed invited submissions to government here in Australia and overseas on matters relevant to education policy on transgender declaring children and adolescents and acceptable therapies with which to treat them. I have published in the area and provided expert reports on disputes regarding treatment of gender dysphoric young people whose cases reach the Family Court.

Key publications (Books, edited books, book chapters, journal articles)

Kenny, D.T. (2020). *Gender dysphoria in children and young people: Collected papers on the psychology, sociology and ethics of gender transitioning*. Germany: Scholars Press.

This book critiques gender dysphoria in young people and its current treatments that include gender affirmation therapy involving puberty blocking agents, cross sex hormones and sex reassignment surgery. I examine the safety of these treatments, evidence of efficacy, capacity of children and young people to give consent to life altering treatments, the social impacts of transgender individuals, particularly in women's sport, and the social contagion of gender dysphoria.

D'Angelo, R., Syrulnik, E., Ayad, S., Marchiano, L., **Kenny, D. T.,** & Clarke, P. (2021). One size does not fit all: In support of psychotherapy for gender dysphoria. *Archives of Sexual Behavior*, *50*(1), 7-16.

Holloway, G., **Kenny, D.T.,** Deves, K., …Parkinson, P., Morris, P., & Halasz, G. (2021). Australian perspectives on transgendering children and adolescents: Implications for policy and practice. Hobart: Author.

Kenny, D.T. (2021). *Opposing the teaching of gender fluidity ideology: The Education Legislation Amendment (Parental Rights) Bill 2020* (pp. 13-22). In Holloway, G., **Kenny, D.T.,** Deves, K., …Parkinson, P., Morris, P., & Halasz, G. (2021). Australian perspectives on transgendering children and adolescents: Implications for policy and practice. Hobart: Author.

Kenny, D.T. (2021). *The social contagion of gender dysphoria: a theoretical and empirical proposition* (pp. 56-70). In Holloway, G., **Kenny, D.T.,** Deves, K., …Parkinson, P., Morris, P., & Halasz, G. (2021). Australian perspectives on transgendering children and adolescents: Implications for policy and practice. Hobart: Author.

Submissions to government inquiries

Kenny, D.T. (2021). Submission to the NSW Parliamentary Inquiry: Education Legislation Amendment (Parental Rights) Bill 2020.

https://www.parliament.nsw.gov.au/lcdocs/submissions/70648/0005%20Professor%20Diana%20Kenny.pdf and

https://www.parliament.nsw.gov.au/lcdocs/inquiries/2610/Report%20No%2044%20-%20PC%203%20-%20Education%20Legislation%20Amendment%20(Parental%20Rights)%20Bill%202020.pdf

Kenny, D.T. (2020). Gender development and the transgendering of children. In H. Brunskell-Evans and M. Moore. *The fabrication of the transgender child*. Cambridge: Cambridge Scholars Press.

Kenny, D.T. (2020). Submission and invited presentation to the Queensland government Inquiry into the proposed *Health Legislation Amendment Bill 2019* to outlaw conversion therapy.
https://diannakenny.com.au/images/pdfs/Submission_to_the_Queensland_Inquiry_into_Outlawing_Conversion_Therapy.pdf and
https://documents.parliament.qld.gov.au/tableOffice/TabledPapers/2020/5620T328.pdf

Kenny, D.T. (July 2020). Submission to the ACT government into proposed amendments to outlaw conversion therapy.

Clinical guidelines

Morris, P. …. **Kenny, D.T**….. (May, 2021). *Managing Gender Dysphoria/Incongruence in Young People: A Guide for Health Practitioners.* National Association of Practising Psychiatrists. https://napp.org.au/2021/05/managing-gender-dysphoria-incongruence-in-young-people-a-guide-for-health-practitioners/

Presentations

Kenny, D.T. (2021). *Transgendering our young people: Faulty science, psychic epidemic.* Invited lecture to the Faculty of Medicine, Notre Dame University, Sydney, Australia.

Kenny, D.T. (2020). *Affirmation only: Where's the evidence.* Invited presentation to the Catholic Medical and Bioethical Conference, 30 May.

Kenny, D.T. (2020). *Is gender dysphoria socially contagious?* Invited presentation to the NSW Parliament Forum on gender dysphoria in our young people, 18 February.

Kenny, D.T. (2020). *Transgender "ideology" and the "trans-gendering" of young people.* Invited presentation to the Northern Area Mental Health Network, NSW Department of Health, 12 February.

Kenny, D.T. (2019). *Children and young people seeking and obtaining treatment for gender dysphoria in Australia: Trends by state over time (2014-2018).* Paper presented at the Forum on transgender children and adolescents at the Parliament of NSW, 2 July, 2019.

Children and young people seeking and obtaining treatment for gender dysphoria in Australia: Trends by state over time (2014-2018) - Professor Dianna Kenny

Kenny, D.T. (2019). Female sport participation and gender affirmation: A collision course for medical ethics. Invited presentation Melbourne consortium of parents of transgender declaring children. 12-13 October.

Female sport participation and gender affirmation: A collision course for medical ethics - Professor Dianna Kenny

For other significant contributions to the gender dysphoria debate, go to https://www.diannakenny.com.au/

(b) Child and adolescent development

(i) I commenced my professional life as a primary school teacher, then became a school counsellor, and specialist counsellor for emotionally disturbed children with the NSW Department of Education. I held these positions for 10 years before joining The University of Sydney, where I rose to the rank of Professor of Psychology in 2006.

(ii) I hold a PhD in developmental and educational psychology, a master's degree in School Counselling, an honours degree in psychology and postgraduate diplomas in education and family dispute resolution.

(iii) I am a recognised expert in child development. I have designed and lectured in a range of courses at undergraduate and postgraduate levels pertaining to child development including: Developmental psychology; developmental psychopathology; infant and child study (with a focus on language and cognitive development); attachment theory; the psychological and cognitive assessment of children; and the developmental foundations of stress and coping.

(iv) I have major publications in the area of child development.

(v) I have provided reports on children to the courts and police, including on issues in child development such as language and cognitive development, childhood memory and its reliability, and adverse experiences that impair normal development such as attachment trauma and environmental risks to safety and security.

(vi) I am able to provide comprehensive literature reviews on most subjects related to child development.

Key publications:

Kenny, D.T. (2013). *Bringing up baby: The psychoanalytic infant comes of age.* London: Karnac.

This book examines the development of children, from birth to adolescence. It provides a detailed analysis of all modes of development including cognitive and social development, language development, the development of memory, the role of secure attachments in emotional development and the contribution of developmental neuroscience to our understanding of infant and child development.

Kenny, D.T. (2007). *Lifespan development: Theories and research.* The University of Sydney: Author.

This comprehensive manual describes how people develop and change throughout the lifespan, critically evaluates how cultural, historical, and economic factors influence development, presents the major psychosocial, emotional, and cognitive developmental theories, discusses the major controversies in developmental psychology, integrates different theoretical perspectives on development, and applies developmental theory to healthcare practice. It includes a critical review of the methods and research approaches (including genetic, comparative, cross cultural, ethological, and ecological) in developmental psychology and research designs (including cross-sectional, cohort and longitudinal, time lag and sequential).

Schofield, P., Mason, R., Nelson, P.K., **Kenny, D. T.,** & Butler, T. (2018). Traumatic brain injury is highly associated with self-reported childhood trauma within a juvenile offender cohort. *Brain Injury,* DOI: 10.1080/02699052.2018.1552020.

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Kenny, D.T. (2001). Cognitive-developmental theory. In Carol Jones (Ed). *Readers' Guide to the Social Sciences Volume 1, pp. 230-231.* London, United Kingdom: Fitzroy Dearborn Publishers.

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Kenny, D.T. (2000). Psychological foundations of stress and coping: A developmental perspective. In Kenny, D.T., Carlson, J. G. McGuigan, F. J. & Sheppard J. L. (Eds.). *Stress and health: Research and clinical applications*. Ryde, NSW: Gordon Breach Science/Harwood Academic Publishers (pp. 73-104).

Kenny, D.T. & Waters, B. (1995). Current issues in adolescent mental health. In D.T. Kenny and R.F.S. Job (Eds). *Australia's Adolescents: A Health Psychology Perspective.* Armidale: University of New England Press (pp 68-88).

Kenny, D.T. & Job, R.F.S. (Eds.) (1995). *Australia's adolescents: A health psychology perspective* (272 pages). Armidale: University of New England Press ISBN 1 875821 24 4.

(c) Child sexual abuse (CSA)

I provide expert reports on child complainants and alleged adult sex offenders to Joint Investigative Response Teams and Child Abuse Teams within the NSW Police. I have current experience:

(i) in counselling CSA victims.

(ii) providing structural and psychological analysis of CSA victim statements. I have developed specific expertise in the assessment of child testimony in sexual abuse cases.

(iii) reviewing video recordings of police interviews with alleged victims of CSA and providing commentary on the pertinent psychological issues.

(iv) providing expert statements and reviews of literature on matters pertaining to child development in general and CSA in particular, for the ODPP, Police, JIRT, barristers, and court.

(v) acting as an expert witness in cases of child sexual abuse, historical child sexual abuse, and paedophilia.

(vi) I have given evidence in court and have been cross-examined.

(vii) I have extensive knowledge of the child abuse literature and have written a book on the subject (see below).

(viii) I am able to provide comprehensive literature reviews on most subjects related to child sexual abuse.

(ix) I have publications – book, journal articles, monographs – on sex offending and have served on ministerial committees within the NSW Department of Juvenile Justice and the NSW Department of Corrective Services.

Key publications:

Kenny, D.T. (2018). *Children, sexuality, and child sexual abuse*. East Sussex, UK: Routledge**.**

This book has become a seminal text in the field because of its wide-ranging coverage and attention to all the recent research in the field, including the *Royal Commission into Institutional Responses to Child Sexual Abuse*. It covers all the key topics in child sexual abuse, including the nature of disclosures, both immediate and delayed, and their reliability; normal memory development and distortions of memory that can occur from a range of environmental influences including leading and suggestive interviewing; impacts of child sexual abuse, including short- and long-term consequences; assessment and forensic analysis of witness statements, and psychological analysis of CSA victim statements.

Kenny, D.T. (1997). Opinion, policy and practice in child sexual abuse: Implications for detection and reporting. In M. James (Ed.). *Paedophilia: Policy and prevention.* Research and Public Policy Series No 12: Australian Institute of Criminology, Sydney, Australia. ISSN 1326-6004. (pp 14-31).

In addition, last year I wrote a major report on paedophilia for the Child Abuse Squad, Ballina, addressing the question as to whether an individual in possession of child abuse material is a paedophile. This question had not been explicitly dealt with in the literature. Accordingly, I undertook major research on the subject and produced a report that the presiding judge allowed to be admitted into evidence to demonstrate tendency. The solicitor for the ODPP advised me that my report "may create a precedent for use in future similar matters."

(d) Juvenile offending and juvenile sex offending

For a number of years, I chaired or was a member of several committees within the NSW Department of Juvenile Justice and the New South Wales Department of Corrective Services, including Chair, Ministerial Steering Committee, NSW Department of Juvenile Justice Collaborative Research Unit, Chair, Research and Ethics Subcommittee, NSW Department of Juvenile Justice Collaborative Research Unit, Chair, Ministerial Steering Committee on Sexual Offending, New South Wales Department of Corrective Services, A/Chair and Member, Ministerial Reference Group on Sexual Offending, New South Wales Department of Corrective Services.

Kenny, D.T., Seidler, K., Keogh, T., & Blasczynski, A., (2000). Offence and clinical characteristics of Australian juvenile sex offenders. *Psychiatry, Psychology, and the Law, 7*, 2, 212-227.

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Kenny, D.T. (2014). Mental health concerns and behavioural problems in young offenders in the criminal justice system. *Judicial Officers' Bulletin (Judicial Commission of NSW)*, 26 (4), 29-33.

Kenny, D.T. (2013). Violent young offenders in the criminal justice system. *Judicial Officers' Bulletin (Judicial Commission of NSW),* 25 (3), 19-24.

Kenny, D.T. (2015). Juvenile sex offenders in the criminal justice system. *Judicial Officers' Bulletin,* (Judicial Commission of NSW*), 27 (*4), 31-34.

(e) Educational psychology

During my earlier professional life, I worked as a school counsellor and specialist counsellor for emotionally disturbed children within the Division of Guidance and Special Education, NSW Department of Education. I was responsible for assessing children whose psychological difficulties were such that they could not be managed within the mainstream classroom. I undertook detailed assessments of their educational, social, and cognitive development in order to provide appropriate school placements for children who had significant trauma histories and intellectual disabilities.

Key publications:

Kenny, D.T. (2016). The adolescent brain: Implications for assessing young offenders' legal competence. *Judicial Officers' Bulletin* (Judicial Commission of NSW*), 28* (3), 23-27.

Kenny, D.T. (2012). Young offenders with an intellectual disability in the criminal justice system: Prevalence, profile, policy, planning and programming. *Judicial Officers' Bulletin (Judicial Commission of NSW),* 24, 5, 35-42.

Jensen, P. Stevens, S., & **Kenny, D.T.** (2012). Effects of yoga breathing on the behaviour and attention of boys with ADHD. *Journal of Child and Family Studies,* 2, 4, 667-681. DOI 10.1007/s10826-011-9519-3.

Kenny, D.T. & Frize, M. (2010). Intellectual disability, Aboriginal status and risk of re-offending in

young offenders on community orders. Special Edition, *Indigenous Law Bulletin,* 7, 18, 14-19

Kenny, D.T., & Faunce, G. (2004). Effects of academic coaching on elementary and secondary school students. *Journal of Educational Research, 98*, 2, 115-126.

Kenny, D.T. (1992). Can teachers be tests? A comparison of teacher ratings and test assessments of early reading performance. In H. Motoaki, J. Misumi, J. B. Wilport (Eds). *Social, Educational and Clinical Psychology*, Vol 3, pp 177-178. London: Lawrence Erlbaum Associates.

Kenny, D.T. (1989). The effect of grade repetition on the academic performance and social/emotional adjustment of infant and primary students. In Luszcz M. and Nettlebeck T. (Eds). *Psychological development: Perspectives across the lifespan*, pp 261-271. North Holland: Elsevier Science Publisher B.V.

(f) Family Therapy and Family Dispute Resolution

I assist parents to reach parenting agreements with respect to shared parental responsibility of their children following separation and divorce. I also undertake mediation with respect to property settlements. I undertook an 18-month training program with Relationships Australia in marriage and family therapy, in which capacity I work with families to resolve conflict, attachment ruptures, relationship stresses, and behavioural difficulties.

Having dual qualifications in both family therapy and family dispute resolution places me in an ideal position to assess families in custody disputes in relation to parenting capacity, shared parental responsibility and allegations of emotional, physical and sexual abuse. In these capacities I have provided parenting capacity reports to both family law solicitors and barristers, the Family Court and the Children's Court.

Key publication:

Kwok, E. & **Kenny, D.T.** (2015). The application of collaborative practice to misattributed paternity disputes. *Australasian Dispute Resolution Journal*, 26, 127- 136.

Other Major Consultancies, Invited Commissioned Reports and Invited Submissions to Government Inquiries

Kenny, D.T. (April, 2011). The NSW Law Reform Commission (NSW LRC). Consultation Paper 11. *Young people with cognitive and mental health impairments in the criminal justice system*, Roundtable.

Kenny, D.T. (2009). Submission on bullying to the NSW Legislative Council General Purpose Standing Committee No 2.

Kenny, D.T. & Lennings, C. (2007). *Provisional sentencing of serious young offenders.* NSW Sentencing Council. Department of the Attorney General.

Kenny, D.T., Nelson, P., Butler, T., Lennings, C., Allerton, M., & Champion, U. (2006). *Young people on community orders health survey: Key findings report.* Sydney, Australia: University of Sydney ISBN: 1 86487 845 2

Allerton, M., Champion, U., Kenny, D.T., Butler, T. et al (2003). 2003 *Young people in custody health survey.* NSW Department of Juvenile Justice ISBN 0 7347 6518 5

Kenny, D.T. & Hunter, J. (2003). *Review of psychological services and specialist programs in the NSW*

Department of Juvenile Justice. Commonwealth Cost and Quality of Government (Internal Audit Bureau). (170 pages).

Kenny, D.T. (1996). *The effects of television/movie/video violence on the behaviour of children and adolescents*. Invited submission from the Australian Family Association (NSW Branch) to the Federal Government's Committee of Ministers on the 'Portrayal of Violence.'

Professional contributions in Psychology and the Law

Journal Reviewer

1. Frontiers in Psychology
2. Journal of Child Sexual Abuse
3. Sexual Abuse: A Journal of Research and Treatment
4. Psychology and the Law
5. International Journal of Offender Therapy and Comparative Criminology
6. Clinical Psychology Review
7. Journal of Sexual Abuse and Treatment
8. Behavioral and Brain Functions
9. Archives of Clinical Psychiatry
10. Australian Psychologist

Other invited presentations (selected)

Kenny, D.T. (2017). *Institutional Child Sexual Abuse*. Invited paper to the Local Court of NSW Annual Conference (2-7 August), Sydney, Australia.

Kenny, D.T. (2013). Young offenders in the juvenile justice system: A story of violence, intellectual disability, substance abuse, alienation and social disadvantage. Invited paper to *The Children's Court Magistrates' Section 16 meeting* (2 November). Sydney, Australia.

Kenny, D.T. (2011). Risks and needs of indigenous offenders: physical and mental health. Invited paper to A weekend conference for judicial officers and Aboriginal community members, *Judicial Commission of NSW* (10-11 September). Sydney, Australia.

Kenny, D.T. (2009). Intellectual disability and Indigenous status are predictors of recidivism in young offenders. Invited paper to the *Australian Institute of Criminology Conference* (1 September), Parramatta, Australia.

Kenny, D.T. (2009). Young offenders: the importance of compensatory attachments and the role of teachers. Keynote paper to the *NSW Department of Education Principals' Conference* (April), Sydney, Australia.

Kenny, D.T. (2007). Juvenile sex offenders: Theory into practice. Invited paper to the *Australian and New Zealand Association for the Treatment of Sex Abuse* (21 June). Blacktown, Sydney.

Kenny, D.T. (2007). Cognitive and educational problems of young offenders. *School Education Directors of Education Twilight Seminars* (26 June). Sydney, Australia.

Kenny, D.T. (2006). Physical and mental needs of young offenders. *Disability Strategic Group*, NSW Department of Juvenile Justice (August). Sydney, Australia.

Kenny, D.T**.** (2005). Impact of violence classification on its relationship to psychological factors and mental health. *Prisoner Health Research Symposium*, JusticeHealth (18 February). Sydney, Australia.

Kenny, D.T., Vecchiato, C., Allerton, M., Kenny, D.T. (2003). Young People in Custody Health Survey: Mental health. *Australian Institute of Criminology Conference* (1-2 December). Sydney, Australia.

Kenny, D.T. (2002). Predictors of recidivism in juvenile sex offenders: Lessons for prevention. *Jocelyn Wale Distinguished Scholar Series* (23 June). James Cook University, Queensland.

Kenny, D.T., Keogh, T., & Seidler, K. (2001). Developmental and clinical characteristics of juvenile sex offenders: Predictors of recidivism and implications for treatment. *Inaugural Australian Forensic Psychology Conference* (February). Sydney, Australia.

Kenny, D.T. (1999). *Recidivism prediction model for juvenile sex offenders.* Invited presentation to the Minister for Juvenile Justice, Carmel Tebbutt MLC, and the Collaborative Research Unit, NSW Department of Juvenile Justice.

No. 22-11707

UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT

PAUL A. EKNES-TUCKER, et al.,
Plaintiffs-Appellees,

&

UNITED STATES OF AMERICA
Intervenor-Plaintiff-Appellee,

v.

GOVERNOR OF THE STATE OF ALABAMA, et al.,
Defendants-Appellants.

On Appeal from the United States District Court
for the Middle District of Alabama
Case No. 2:22-cv-184-LCB

APPELLANTS' APPENDIX VOLUME V OF XIII

Christopher Mills
SPERO LAW LLC
557 East Bay St.,
#22251
Charleston, SC 29451
(843) 606-0640
cmills@spero.law

Steve Marshall
Attorney General
Edmund G. LaCour Jr.
Solicitor General
A. Barrett Bowdre
Thomas A. Wilson
Deputy Solicitors General
James W. Davis
Deputy Attorney General
Benjamin M. Seiss
Assistant Attorney General
STATE OF ALABAMA
OFFICE OF THE ATTORNEY GENERAL
501 Washington Ave.
Montgomery, AL 36130
(334) 242-7300
Edmund.LaCour@AlabamaAG.gov

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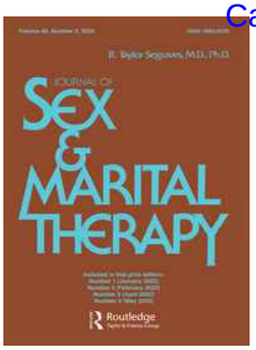

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REVIEW

Reconsidering Informed Consent for Trans-Identified Children, Adolescents, and Young Adults

Stephen B. Levine[a], E. Abbruzzese[b] and Julia M. Mason[c]

[a]Department of Psychiatry, Case Western Reserve University, Cleveland, OH, USA; [b]Society for Evidence Based Gender Medicine (SEGM), Twin Falls, ID, USA; [c]Department of Pediatrics, Gresham, OR, USA

ABSTRACT

In less than a decade, the western world has witnessed an unprecedented rise in the numbers of children and adolescents seeking gender transition. Despite the precedent of years of gender-affirmative care, the social, medical and surgical interventions are still based on very low-quality evidence. The many risks of these interventions, including medicalizing a temporary adolescent identity, have come into a clearer focus through an awareness of detransitioners. The risks of gender-affirmative care are ethically managed through a properly conducted informed consent process. Its elements—deliberate sharing of the hoped-for benefits, known risks and long-term outcomes, and alternative treatments—must be delivered in a manner that promotes comprehension. The process is limited by: erroneous professional assumptions; poor quality of the initial evaluations; and inaccurate and incomplete information shared with patients and their parents. We discuss data on suicide and present the limitations of the Dutch studies that have been the basis for interventions. Beliefs about gender-affirmative care need to be separated from the established facts. A proper informed consent processes can both prepare parents and patients for the difficult choices that they must make and can ease professionals' ethical tensions. Even when properly accomplished, however, some clinical circumstances exist that remain quite uncertain.

KEYWORDS

Informed consent; ethics; gender dysphoria; gender identity; detransition

Introduction

Reconsideration of the meanings, purposes, indications, and processes of informed consent for transgender-identified youth is urgently needed. Parents of gender atypical children are considering social transition as early as preschool or grade school. Parents of preteens and teens are considering supporting their children's wishes to present in a new gender, take puberty blockers, cross-sex hormones, and plan for surgical alterations. College-aged youth are declaring new identities for the first time and obtaining hormones and surgery without their parents' knowledge.

When uncertain parents of children and teens consult their primary care providers, they are usually referred to specialty gender services. Parents and referring clinicians assume that specialists with "gender expertise" will undertake a thorough evaluation. However, the evaluations preceding the recommendation for gender transition are often surprisingly brief (Anderson & Edwards-Leeper, 2021) and typically lead to a recommendation for hormones and surgery, known as *gender-affirmative* treatment.

CONTACT Stephen B. Levine sbl2@case.edu Department of Psychiatry, Case Western Reserve University, 23425 Commerce Park #104, Cleveland, OH44106-7078, USA.

Despite the widely recognized deficiencies in the evidence supporting gender-affirmative interventions (National Institute for Health & Care Excellence, 2020a; 2020b), the process of obtaining informed consent from patients and their families has no established standard. There is no consensus about the requisite elements of evaluations, nor is there unanimity about how informed consent processes should be conducted (Byne et al., 2012). These two matters are inconsistent from practitioner to practitioner, clinic to clinic, and country to country.

Social transition, hormonal interventions, and surgery have profound implications for the course of the lives of young patients and their families. It is incumbent upon professionals that these consequences be thoroughly, patiently clarified over time prior to undertaking any element of transition. The informed consent process does not preclude transition; it merely educates the family about the state of the science underpinning the decision to transition. Social transition, hormones, and surgeries are unproven in a strict scientific sense, and as such, to be ethical, require a thorough and fully informed consent process.

Ethical Concerns About Inadequate Informed Consent

The concept of informed consent in medicine has roots in both ethical theory and law. The ethical foundation is centered in the principles of beneficence, justice, and respect for autonomy, while the legal issues have to do with questions of malpractice (Katz et al., 2016).

Patients consenting to treatment must meet age-based and decisional capacity requirements (Katz et al., 2016). Minors less than the age of consent participate in decision-making by providing *assent*—an agreement with the intervention. The limited maturational cognitive capacities of minors are the key reason why parents serve as the ethical and legal surrogates for medical decision-making, tasked with signing an informed consent document (Grootens-Wiegers, Hein, van den Broek, & de Vries, 2017).

The informed consent process consists of three main elements: a disclosure of information about the nature of the condition and the proposed treatment and its alternatives; an assessment of patient and caregiver understanding of the information and capacity for medical decision-making; and obtaining the signatures that signify informed consent has been obtained (Katz et al., 2016). The current expectation that clinicians and institutions are required to thoroughly inform their patients about the benefits, risks, and uncertainties of a particular treatment, as well as about alternatives, has a long legal history in the United States (Lynch, Joffe, & Feldman, 2018).

Ethical concerns about inadequate informed consent for trans-identified youth have several potentially problematic sources, including *erroneous assumptions* held by professionals; *poor quality of the evaluation process*; and *incomplete and inaccurate information* that the patients and family members are given.

These concerns are amplified by the *dramatic growth* in demand for youth gender transition witnessed in the last several years that has led to a perfunctory informed consent process. A rushed process does not allow for a proper discussion of not only the benefits, but the profound risks and uncertainties associated with gender transition, especially when gender transition is undertaken before mature adulthood.

a. *Dramatic growth in demand for services threatens true informed consent*

Gender identity variations were thought to be extremely rare a generation ago. While the incidence in youth had not been officially estimated, in adults it was 2-14 per 100,000 (American Psychiatric Association, 2013, p. 454). However, around 2006, the incidence among youth began to rise, with a dramatic increase observed in 2015 (Aitken et al., 2015, de Graaf, Giovanardi, Zitz, & Carmichael, 2018). Currently, 2-9% of U.S. high school students now identify as transgender, while in colleges, 3% of males and 5% of females identify as gender-diverse (American College Health Association, 2021; Johns et al., 2019; Kidd et al., 2021).

Whereas previously most of the affected individuals identified as the opposite sex, there is now a growing trend toward identifying as *nonbinary*: neither male nor female or both male and female (Chew et al., 2020). A recent study reported that the majority of transgender-identifying youth (63%) now have a non-binary identity (Green, DeChants, Price, & Davis, 2021). Although the incidence of natal males asserting a trans identity in adolescence has significantly increased, the dramatic increase is driven primarily by the increase in natal females requesting services (Zucker, 2017). Many suffer from significant comorbid mental health disorders, have neurocognitive difficulties such as ADHD or autism or have a history of trauma (Becerra-Culqui et al., 2018; Kozlowska, McClure, et al., 2021).

The increase in rates of transgender identification is reflected in the numbers of youth seeking help from medical professionals. For example, according to data reported by the Tavistock gender clinic in the UK, in 2009, there were 51 requests for services (de Graaf et al., 2018); in 2019-2020, 2728 referrals were recorded—a 53-fold increase in just over a decade (Tavistock & Portman NHS Foundation Trust, 2020). The growing number of urban transgender health centers that have arisen in recent years (HRC, n.d.) reflects the increased demand for gender-related medical care among young people in North America Australia, and Europe.

This unprecedented increase has created pressure on institutions and practitioners to rapidly evaluate these youth and make recommendations about treatment. To respond to growing demand, an innovative *informed consent model of care* has been developed. Under this model, mental health evaluations are not required, and hormones can be provided after just one visit following the collection of a patient's or guardian's consent signature (Schulz, 2018). The provision of transition services under this model of care is available not just to those over 18, but for younger patients as well (Planned Parenthood League of Massachusetts, n.d.).

Although following the informed consent model of care for hormones and surgeries for youth may diminish clinicians' ethical or moral unease (Vrouenraets et al., 2020), we believe this model is the antithesis of true informed consent, as it jeopardizes the ethical foundation of patient autonomy. Autonomy is not respected when patients consenting to the treatment do not have an accurate understanding of the risks, benefits, and alternatives.

b. *Assumptions held by professionals influence the integrity of the informed consent process*

Gender dysphoric children and teens can intensely occupy the belief that their lives will be immensely improved by transition. Clinicians who have embraced the gender-affirmative model of care operate on the assumption that children and teens know best what they need to be happy and productive (Ehrensaft, 2017). These professionals, responding to the youths' passionate pleas, see their role as validating the young person's fervent wishes for hormones and surgery and clearing the path for gender transition. In doing so, they privilege the ethical principle of respect for patient autonomy (Clark & Virani, 2021) over their obligations for beneficence and non-maleficence.

Many of the gender-affirmative clinicians subscribe to the theory of *minority stress* – the supposition that the frequently co-occurring psychiatric symptoms of gender dysphoric individuals are a result of prejudice and discrimination brought about by gender non-conformity (Rood et al., 2016; Zucker, 2019), and that gender transition will ameliorate these symptoms. Some even claim that gender-affirmative care will successfully treat not only depression and anxiety but will also resolve neurocognitive deficits frequently present in gender dysphoric individuals (Turban, 2018; Turban, King, Carswell, & Keuroghlian, 2020; Turban & van Schalkwyk, 2018). These latter assertions have proven controversial even among the proponents of gender-affirmative interventions (Strang et al., 2018; van der Miesen, Cohen-Kettenis, & de Vries, 2018). The minority stress theory as the sole explanatory mechanism for co-occurring mental health illness has also been questioned in light of the evidence that psychiatric symptoms frequently pre-date the onset of gender dysphoria (Bechard, VanderLaan, Wood, Wasserman, & Zucker, 2017; Kaltiala-Heino, Sumia, Työläjärvi, & Lindberg, 2015; Kozlowska, Chudleigh, McClure, Maguire,

& Ambler, 2021). Other clinicians recognize the limits of gender-affirmative care and are aware that youth with underlying psychiatric issues are likely to continue to struggle post-transition (Kaltiala, Heino, Työläjärvi, & Suomalainen, 2020), but, unaware of alternative approaches such as gender-exploratory psychotherapy or watchful waiting (Bonfatto & Crasnow, 2018; Churcher Clarke & Spiliadis, 2019; Spiliadis, 2019), these well-meaning professionals continue to treat youth with gender-affirmative interventions despite lingering doubts.

It is common for gender-affirmative specialists to erroneously believe that gender-affirmative interventions are a *standard of care* (Malone, D'Angelo, Beck, Mason, & Evans, 2021; Malone, Hruz, Mason, Beck, et al:, 2021). Despite the increasingly widespread professional beliefs in the safety and efficacy of pediatric gender transition, and the endorsement of this treatment pathway by a number of professional medical societies, the best available evidence suggests that the benefits of gender-affirmative interventions are of very low certainty (Clayton et al., 2021; National Institute for Health & Care Excellence, 2020a; 2020b) and must be carefully weighed against the health risks to fertility, bone, and cardiovascular health (Alzahrani et al., 2019; Biggs, 2021; Getahun et al., 2018; Hembree et al., 2017; Nota et al., 2019). Recently, emphasis has also been placed on psychosocial risks and as yet unknown medical risks (Malone, D'Angelo, et al., 2021).

Five scientific observations question and refute the assumption that an individual's experience of incongruence of sex and gender identity is best addressed by supporting the newly assumed gender identity with psychosocial and medical interventions.

1. The most foundational aspect of the diagnoses of "gender dysphoria" (DSM-5) and "gender incongruence" (ICD-11), requisite for the provision of medical treatment, is in flux, as professionals disagree on whether the presence of distress is a key diagnostic criterion, as stated in the DSM-5, or is irrelevant, as is the case according to the latest ICD-11 criteria (American Psychiatric Association, 2013; World Health Organization, 2019). Further, these diagnoses have never been properly field-tested (de Vries et al., 2021).
2. There are no randomized controlled studies demonstrating the superiority of various affirmative interventions compared to alternatives. There isn't even agreement about which outcome measures would be ideal in such studies.
3. There are few long-term follow-up studies of various interventions using predetermined outcome measures at designated intervals. Studies that have been conducted are, at best, inconsistent. Higher quality studies with longer-follow-up fail to demonstrate durable positive impacts on mental health (Bränström & Pachankis, 2020a; 2020b).
4. Rates of post-transition desistance, increased mental suffering, increased incidence of physical illness, educational failure, vocational inconstancy, and social isolation have not been established.
5. Numerous cross-sectional and prospective studies of transgender adults consistently demonstrate a high prevalence of serious mental health and social problems as well as suicide (Asscheman et al., 2011; Dhejne et al., 2011). Controversies about how to deal with trans-identified youth must consider the well described vulnerabilities of transgender adults.

It is equally important to realize that to date, research about alternative approaches, such as psychotherapy or watchful waiting, shares the scientific limitations of the research of more invasive interventions: there are no control groups, nor is there systematic follow-up at predetermined intervals with predetermined means of measurement (Bonfatto & Crasnow, 2018; Churcher Clarke & Spiliadis, 2019; Spiliadis, 2019). Parents and patients need to be informed of this as well.

Perhaps the single most problematic assumption held by some gender clinicians is that the young patients have simply been "born in the wrong body." This assumption seemingly frees clinicians from having to contend with the ethical dilemmas of recommending body-altering

interventions that are based on very low-quality evidence. Despite the principle of development that biology, psychosocial factors, and culture generate behavior, these clinicians may believe that atypical genders are created by biology. This reductionistic approach has been criticized repeatedly (Kendler, 2019).

While the origins of childhood or adolescent onset of gender incongruence have not yet been fully elucidated, brain studies of increasing technical sophistication have yet to demonstrate a distinct structure or pattern that accounts for an atypical gender identity, after statistically controlling for sexual orientation and exposure to exogenous hormones (Frigerio, Ballerini, & Valdés Hernández, 2021). Twin studies also demonstrate that while biology plays a role in one's experience of "gender incongruence," it is far from deterministic (Diamond, 2013).

A growing number of clinicians and researchers are noting that the dramatic rise of teens declaring a trans identity appears to be, at least in part, a result of peer influence (Anderson, 2022; Hutchinson, Midgen, & Spiliadis, 2020 Littman, 2018; Littman, 2020; Zucker, 2019). Some have noted yet another influx of trans-identified youth emerging during the COVID lockdowns, and have hypothesized that increased isolation coupled with heavy internet exposure may be responsible (Anderson, 2022). While the research into the phenomenon of social influence as a contributor to trans identification of youth is still in its infancy, the possibility that clinicians are providing treatments with permanent consequences to address what may be transient identities in youth poses a serious ethical dilemma.

c. *Poor evaluations*

There is a growing recognition that rapid evaluations which disregard factors contributing to the development of gender dysphoria in youth are problematic. In November 2021, two leaders of the World Professional Organization for Transgender Health (WPATH) warned the medical community that the "The mental health establishment is failing trans kids" (Anderson & Edwards-Leeper, 2021). Frequently, evaluations provided by gender clinicians may only ascertain the diagnosis of *gender dysphoria* (DSM-5) or its ICD-11 counterpart *gender incongruence*, and screen for conspicuous mental illness prior to recommending hormones and surgeries. These limited, abbreviated evaluations overlook, and as a result fail to address, the relevant issue of the forces that may have influenced the young person's current gender identity.

Confirming the young person's self-diagnosis of gender dysphoria or gender incongruence is easy. Clarifying the developmental forces that have influenced it and determining an appropriate intervention are not. Contextualizing these forces involves an understanding of child and adolescent developmental processes, childhood adversity, co-existing physical and cognitive disadvantages, unfortunate parental or family circumstances (Levine, 2021), as well as the role of social influence (Anderson, 2022; Anderson & Edwards-Leeper, 2021; Littman, 2018; 2021).

The poor quality of mental health evaluations has been a point of significant discontent for a growing number of parents of gender dysphoric youth. Increasingly, parents have formed dozens of support groups in North America, Europe, Australia and New Zealand, united in their objections to the idea that the best or the only treatment for their gender dysphoric children is affirmation (Genspect, 2021). These distressed parents, recognizing that their son or daughter may eventually decide to present to others as a trans person, want a psychotherapeutic investigation to understand what contributed to the development of this identity and an exploration of noninvasive treatment options. Frequently, they cannot find anyone in their community who does not recommend immediate affirmation.

The American Academy of Pediatrics' Committee of Bioethics recognizes that "parents…are better situated than others to understand the unique needs of their children and to make appropriate, caring decisions regarding their children's health care" (Katz et al., 2016). The plight of the families unable to find specialists capable of conducting thorough evaluations draws attention to the widespread acceptance of medical interventions for gender-dysphoric youth as the first line of treatment. The problem is that such care has been established through precedent rather

than through scientific demonstrations of its efficacy. We contend that parents and patients have a right to know this, and that it is the professionals' responsibility and obligation to inform them of the state of knowledge in this arena of care.

d. *Incorrect information shared*

In sharing the information with patients and families, two key areas of uncertainty must be emphasized. The first one is the uncertain permanence of a child's or an adolescent's gender identity (Littman, 2021; Ristori & Steensma, 2016; Singh, Bradley, & Zucker, 2021; Vandenbussche, 2021; Zucker, 2017). The second is the uncertain long-term physical and psychological health outcomes of gender transition (National Institute for Health & Care Excellence, 2020a; 2020b). Unfortunately, gender specialists are frequently unfamiliar with, or discount the significance of, the research in support of these two concepts. As a result, the informed consent process rarely adequately discloses this information to patients and their families.

Problematically, it is common for gender clinicians to emphasize the risk of suicide if a young person's wish to transition gender is not immediately fulfilled. There is a significant amount of misinformation surrounding the question of suicidality of trans-identified youth (Biggs, 2022). Providers of gender-affirmative care should be careful not to unwittingly propagate misinformation regarding suicide to parents and youths. They should also be reminded that any conversations about suicide should be handled with great care, due to its socially contagious nature (Bridge et al., 2020; HHS, 2021).

i. High Rate of desistance/natural resolution of gender dysphoria in children is not disclosed

There have been eleven research studies to date indicating a high rate of resolution of gender incongruence in children by late adolescence or young adulthood without medical interventions (Cantor, 2020; Ristori & Steensma, 2016; Singh et al., 2021). An attempt has been made to discount the applicability of this research, suggesting that the studies were based on merely gender non-conforming, rather than truly gender-dysphoric, children (Temple Newhook et al., 2018). However, a reanalysis of the data prompted by this critique confirmed the initial finding: Among children meeting the diagnostic criteria for "Gender Identity Disorder" in DSM-IV (currently "Gender Dysphoria in DSM-5), 67% were no longer gender dysphoric as adults; the rate of natural resolution for gender dysphoria was 93% for children whose gender dysphoria was significant but subthreshold for the DSM diagnosis (Zucker, et al., 2018). It should be noted that high resolution of childhood-onset gender dysphoria had been recorded before the practice of social transition of young children was endorsed by the American Academy of Pediatrics (Rafferty et al., 2018). It is possible that social transition will predispose a young person to persistence of transgender identity long-term (Zucker, 2020).

The information regarding the resolution of gender dysphoria among those with adolescent-onset gender dysphoria, which is currently the predominant presentation, is less clear. A growing body of evidence suggests that for many teens and young adults, a post-pubertal onset of transgender identification can be a transient phase of identity exploration, rather than a permanent identity, as evidenced by a growing number of young detransitioners (Entwistle, 2020; Littman, 2021; Vandenbussche, 2021). Previously, the rate of detransition and regret was reported to be very low, although these estimates suffered from significant limitations and were likely undercounting true regret (D'Angelo, 2018). However, in the last several years since gender-affirmative care has become popularized, the rate of detransition appears to be accelerating.

According to a recent study from a UK adult gender clinic, 6.9% of those treated with gender-affirmative interventions detransitioned within only 16 months of starting treatment, and another 3.4% had a pattern of care suggestive of detransition, yielding a rate of probable detransition in excess of 10%. Another 21.7% of patients disengaged from the clinic without completing

their treatment plan (Hall, Mitchell, & Sachdeva, 2021). While some of these individuals later reengaged with the gender service, the authors concluded, "detransitioning might be more frequent than previously reported." Another study from a UK primary care practice found that 12.2% of those who had started hormonal treatments either detransitioned or documented regret, while the total of 20% stopped the treatments for a wider range of reasons. The mean age of their presentation with gender dysphoria was 20, and the patients had been taking gender-affirming hormones for the average 5 years (17 months-10 years) prior to discontinuing.

Comparing these much higher rates of treatment discontinuation and detransition to the significantly lower rates reported by the older studies, the researchers noted: "Thus, the detransition rate found in this population is novel and questions may be raised about the phenomenon of overdiagnosis, overtreatment, or iatrogenic harm as found in other medical fields" (Boyd, Hackett, & Bewley, 2022 p.15). Indeed, given that regret may take up to 8-11 years to materialize (Dhejne, Öberg, Arver, & Landén, 2014; Wiepjes et al., 2018), many more detransitioners are likely to emerge in the coming years. Detransitioner research is still in its infancy, but two recently published studies examining detransitioner experiences report that detransitioners from the recently-transitioning cohorts feel they had been rushed to medical gender-affirmative interventions with irreversible effects, often without the benefit of appropriate, or in some instances any, psychologic exploration (Littman, 2021; Vandenbussche, 2021).

Clinicians should also disclose to patients and parents that there is no test which can accurately predict who will persist in their transgender identification upon reaching mature adulthood (Ristori & Steensma, 2016). Families should be made aware that a period of strong cross-sex identification in childhood is commonly associated with future homosexuality (Korte et al., 2008). Research in desistance confirms that the majority of youth whose gender dysphoria resolves naturally do indeed grow up to be gay, lesbian, or bisexual adults (Cantor, 2020, Appendix; Singh et al., 2021).

ii. Implications of very low-quality evidence that underlies the practice of pediatric gender transition are not explained

The quality of evidence underlying the practice of pediatric gender transition is widely recognized to be of very low quality (Hembree et al., 2017). In 2020, the most comprehensive systematic review of evidence to date, commissioned by the UK National Health System (NHS) and conducted by the National Institute for Health and Care Excellence (NICE), concluded that the evidence for both puberty blocking and cross-sex hormones is of very low certainty (National Institute for Health & Care Excellence, 2020a; 2020b).

According to the NICE review of evidence for puberty blockers, the studies "are all small, uncontrolled observational studies, which are subject to bias and confounding, and are of very low certainty as assessed using modified GRADE [Grading of Recommendations, Assessment, Development and Evaluations]. All the included studies reported physical and mental health comorbidities and concomitant treatments very poorly" (National Institute for Health & Care Excellence, 2020a, p.13). NICE reached similar conclusions regarding the quality of the evidence for cross-sex hormones (National Institute for Health & Care Excellence, 2020b).

Problematically, the implications of administering a treatment with irreversible, life-changing consequences based on evidence that has an official designation of "very low certainty" according to modified GRADE is rarely discussed with the patients and the families. GRADE is the most widely adopted tool for grading the quality of evidence and for making treatment recommendations worldwide. GRADE has four levels of evidence, also known as certainty in evidence or quality of evidence: very low, low, moderate, and high (BMJ Best Practice, 2021). When evidence is assessed to be "very low certainty," there is a high likelihood that the patients will not experience the effects of the proposed interventions (Balshem et al., 2011).

In the context of providing puberty blockers and cross-sex hormones, the designation of "very low certainty" signals that the body of evidence asserting the benefits of these interventions is

highly unreliable. In contrast, several negative effects are quite certain. For example, puberty blockade followed by cross-sex hormones leads to infertility and sterility (Laidlaw, Van Meter, Hruz, Van Mol, & Malone, 2019). Surgeries to remove breasts or sex organs are irreversible. Other health risks, including risks to bone and cardiovascular health, are not fully understood and are uncertain, but the emerging evidence is alarming (Alzahrani et al., 2019; Biggs, 2021).

iii. The question of suicide is inappropriately handled

Suicide among trans-identified youth is significantly elevated compared to the general population of youth (Biggs, 2022; de Graaf et al., 2020). However, the "transition or die" narrative, whereby parents are told that their only choice is between a "live trans daughter or a dead son" (or vice-versa), is both factually inaccurate and ethically fraught. Disseminating such alarmist messages hurts the majority of trans-identified youth who are not at risk for suicide. It also hurts the minority who are at risk, and who, as a result of such misinformation, may forgo evidence-based suicide prevention intervention in the false hopes that transition will prevent suicide.

The notion that trans-identified youth are at alarmingly high risk of suicide usually stems from biased online samples that rely on self-report (D'Angelo et al., 2020; James et al., 2016; The Trevor Project, 2021), and frequently conflates suicidal thoughts and non-suicidal self-harm with serious suicide attempts and completed suicides. Until recently, little was known about the actual rate of suicide of trans-identified youth. However, a recent analysis of data from the biggest pediatric gender clinic in the world, the UK's Tavistock, found the rate of completed youth suicides to be 0.03% over a 10-year period, which translates into the annual rate of 13 per 100,000 (Biggs, 2022). While this rate is significantly elevated compared to the general population of teens, it is far from the epidemic of trans suicides portrayed by the media.

The "transition or die" narrative regards suicidal risk in trans-identified youth as a different phenomenon than suicidal risk among other youth. Making them an exception falsely promises the parents that immediate transition will remove the risk of suicidal self-harm. Trans patients themselves complain about the so-called "trans broken arm syndrome" – a frustrating pattern whereby physicians "blame" all the problems the patients are experiencing on their trans status, and a result, fail to perceive and respond to other sources of distress (Paine, 2021). Clinicians caring for trans-identified youth should be reminded that suicide risk in all patients is a multi-factorial phenomenon (Mars et al., 2019). To treat trans youths' suicidality as an exception is to deny them evidence-based care.

A recent study of three major youth clinics concluded that suicidality of trans-identifying teens is only somewhat elevated compared to that of youth referred for mental health issues unrelated to gender identity struggles (de Graaf et al., 2020). Another study found that transgender-identifying teens have relatively similar rates of suicidality compared to teens who are gay, lesbian and bisexual (Toomey, Syvertsen, & Shramko, 2018). Depression, eating disorders, autism spectrum conditions, and other mental health conditions commonly found in transgender-identifying youth (Kaltiala-Heino, Bergman, Työläjärvi, & Frisen, 2018; Kozlowska, McClure, et al., 2021; Morandini, Kelly, de Graaf, Carmichael, & Dar-Nimrod, 2021) are all known to independently contribute to the probability of suicide (Biggs, 2022; Simon & VonKorff, 1998; Smith, Zuromski, & Dodd, 2018).

The "transition or suicide" narrative falsely implies that transition will prevent suicides. Clinicians working with trans-identified youth should be aware that although in the short-term, gender-affirmative interventions can lead to improvements in some measures of suicidality (Kaltiala et al., 2020), neither hormones nor surgeries have been showed to reduce suicidality in the long-term (Bränström & Pachankis, 2020a; 2020b). Alarmingly, a longitudinal study from Sweden that covered more than a 30-year span found that adults who underwent surgical transition were 19 times more likely than their age-matched peers to die by suicide overall, with female-to-male participants' risk 40 times the expected rate (Dhejne et al., 2011, Table S1).

Another key longitudinal study from the Netherlands concluded that suicides occur at a similar rate at all stages of transition, from pretreatment assessment to post-transition follow-up (Wiepjes et al., 2020). The data from the Tavistock clinic also did not show a statistically significant difference between completed suicides in the "waitlist" vs. the "treated" groups (Biggs, 2022). Luckily, in both groups, completed suicides were rare events (which may have been responsible for the lack of statistical significance). Thus, we consider the "transition or die" narrative to be misinformed and ethically wrong.

In our experience in working with trans-identified youth, an adolescent's suicidality can sometimes arise as a response to parental distress, resistance, skepticism, or wish to investigate the forces shaping the new gender identity before social transition and hormone therapy. When mental health professionals or other healthcare providers fail to recognize the legitimacy of parental concerns, or label the parents as transphobic, this only tends to intensify intrafamilial tension. Clinicians would be well-advised that gender transition is not an appropriate response to suicidal intent or threat, as it ignores the larger mental health and social context of the young patient's life—the entire family is often in crisis. Trans-identified adolescents should be screened for self-harm and suicidality, and if suicidal behaviors are present, an appropriate evidence-based suicide prevention plan should be put in place (de Graaf et al., 2020).

The Dutch Study: the questionable basis for the gender affirmative model of care for youth

Few practitioners of gender-affirmative interventions, and even fewer patients and families, realize that the foundation of the practice of medically transitioning minors stems from a single Dutch proof of concept study, the outcomes of which were documented in two studies (de Vries, Steensma, Doreleijers, Cohen, & Kettenis, 2011; de Vries et al., 2014). The former (de Vries et al., 2011) reported on cases who underwent puberty blockade, while the latter (de Vries et al., 2014) reported on a subset of the cases who completed surgeries.

The Dutch study subjects' high level of psychological functioning at 1.5 years after surgery, which was the study end point, was an impressive feat. However, both of the studies suffer from a high risk of bias due to their study design, which is effectively a non-randomized case series—one of the lowest levels of evidence (Mathes & Pieper, 2017; National Institute for Health & Care Excellence, 2020a). In addition, the studies suffer from limited applicability to the populations of adolescents presenting today (de Vries, 2020). The interventions described in the study are currently being applied to adolescents who were not cross-gender identified prior to puberty, who have significant mental health problems, as well as those who have non-binary identities—all of these presentations were explicitly disqualified from the Dutch protocol. Despite these limitations, the Dutch clinical experiment has become the basis for the practice of medical transition of minors worldwide and serves as the basis for the recommendations outlined in the 2017 Endocrine Society guidelines (Hembree et al., 2017).

We contend that the Dutch studies have been misunderstood and misrepresented as providing evidence of the safety and efficacy of these interventions for all youth. It is important that both the strengths and the weaknesses of these two studies are understood, as to date, the Dutch experience presents the best available evidence behind the practice of pediatric gender transition.

Rationale for pediatric transition

Prior to the 1990s, gender transitions were typically initiated in mature adults (Dhejne et al., 2011). However, it was noted that particularly for natal male patients, hormonal and surgical interventions failed to achieve satisfactory results, and patients had a "never disappearing masculine appearance" (Delemarre-van de Waal & Cohen-Kettenis, 2006). The lack of adequate cosmetic outcomes was thought to contribute to the frequently disappointing outcomes of medical

gender transition, with persistently high rates of mental illness and suicidality post-transition (Delemarre-van de Waal & Cohen-Kettenis, 2006; Dhejne et al., 2011; Ross & Need, 1989).

In the mid 1990s, a team of Dutch researchers hypothesized that by carefully selecting a subset of gender dysphoric children who would likely be transgender-identified for the rest of their lives, and by medically intervening before puberty left an irreversible mark on their bodies, the cosmetic outcomes would be improved—and as a result, mental health outcomes might be improved (Gooren & Delemarre-van de Waal, 1996).

Mixed study findings

In 2014, the Dutch research team published a key longitudinal study of mental health outcomes of 55 youths who completed medical and surgical transition (de Vries et al., 2014). The 2014 paper (sometimes referred to as the "Dutch study") reported that for youth with severe gender dysphoria that started in early childhood and persisted into mid-adolescence, a sequence of puberty blockers, cross-sex hormones, and breast and genital surgeries (including a mandatory removal of the ovaries, uterus and testes), with ongoing extensive psychological support, was associated with positive mental health and overall function 1.5 years post-surgery.

While the Dutch reported resolution of gender dysphoria post-surgery in study subjects, the reported psychological improvements were quite modest (de Vries et al., 2014). Of the 30 psychological measurements reported, nearly half showed no statistically significant improvements, while the changes in the other half were marginally clinically significant at best (Malone, D'Angelo, et al., 2021). The scores in anxiety, depression, and anger did not improve. The change in the Children's Global Assessment Scale, which measures overall function, was one of the most impressive changes—however it too remained in the same range before and after treatment (de Vries et al., 2014).

Problematic discordance between reduced gender dysphoria and lack of meaningful improvements in psychological measures

The discordance between the marked reduction in gender dysphoria, as measured by the UGDS (Utrecht Gender Dysphoria Scale), and the lack of meaningful changes in psychological function using standard measures, warrants further examination. There are three plausible explanations for this lack of agreement. Any one of these three explanations calls into question the widely assumed notion that the medical interventions significantly improve mental health or lessen or eradicate gender dysphoria.

One possible explanation is that gender dysphoria as measured by UGDS, and psychological function, as measured by most standard instruments, are not correlated. This contradicts the primary rationale for providing gender-affirmative treatments for youth (which is to improve psychological health and functioning), and if true, ethically threatens these medical interventions. The other plausible explanation stems from the high psychological function of all the subjects at baseline; the subjects were selected because they were free from significant mental health problems (de Vries et al., 2014). As a result, there was little opportunity to meaningfully improve. This explanation highlights a key limitation in applying the study's results to the majority of today's gender dysphoric youth, who often present with a high burden of mental illness (Becerra-Culqui et al., 2018; Kozlowska, McClure, et al., 2021). The study cannot be used as evidence that these procedures have been proven to improve depression, anxiety, and suicidality.

A third possible explanation for the discordance between only minor changes in psychological outcomes but a significant drop in gender dysphoria comes from a close examination of the UGDS scale itself and how it was used by the Dutch researchers. This 12-item scale, designed by the Dutch to assess the severity of gender dysphoria and to identify candidates for hormones

and surgeries, consists of "male" (UGDS-aM) and "female" (UGDS-aF) versions (Iliadis et al., 2020). At baseline and after puberty suppression, biological females were given the "female" scale, while males were given the "male" scale. However, post-surgery, the scales were flipped: biological females were assessed using the "male" scale, while biological males were assessed on the "female" scale (de Vries et al., 2014). We maintain that this handling of the scales may have at best obscured, and at worst, severely compromised the ability to meaningfully track how gender dysphoria was affected throughout the treatment.

Consider this example. At baseline, a gender dysphoric biological female would rate items from the "female" scale such as: "I prefer to behave like a boy" (item 1); "I feel unhappy because I have to behave like a girl" (item 6) and "I wish I had been born a boy" (item 12). Positive answers to these questions would have contributed to a high baseline gender dysphoria score. After the final surgery, however, this same patient would be asked to rate items from the "male" scale, including the following: "My life would be meaningless if I had to live as a boy" (item 1); "I hate myself because I am a boy" (item 6) and "It would be better not to live than to live as a boy" (item 12). A gender dysphoric female would not endorse these statements (at any stage of the intervention), which would lead to a lower gender dysphoria score.

Thus, the detected drop in the gender dysphoria scores for biological males and females may have had less to do with the success of the interventions, and more to do with switching the scale from the "female" to the "male" version (and vice-versa) between the baseline and post-surgical period. This, too, may explain why no changes in gender dysphoria were noted between baseline and the puberty blockade phase, and were only recorded after the final surgery, when the scale was switched.

It must be considered that had the researchers administered the "flipped" scale earlier, at the completion of the puberty blocker stage, UGDS scale could have registered the reduction in gender dysphoria. Likewise, however, one must consider the possibility that had *both sets of scales* been administered to the same individual at baseline, a "reduction" in gender dysphoria could have been registered upon switching of the scale, *well before any interventions began*. The question here is whether the diminishment of quantitative measures of gender dysphoria is largely an artifact of what scale was used.

It must be noted that the UGDS measure has been demonstrated only to effectively differentiate between clinically referred gender dysphoric individuals, non-clinically referred controls, and participants with disorders of sexual development, and was not designed to detect changes in gender dysphoria during treatment (Steensma, McGuire, Kreukels, et al. 2013). The presence of items such as "I dislike having erections" (item 11, UGDS-aM), which would have to be rated by birth-females, and "I hate menstruating because it makes me feel like a girl (item 10, UGDS-aF), which would be presented to birth-males, neither of which could be meaningfully rated by either at any stage of the interventions, further illustrates that UGDS has questionable validity for the purpose of detecting meaningful changes in gender dysphoria as a result of medical and surgical treatment.

The updated UGDS scale (UGDS-GS), developed by the Dutch after the publication of their seminal study, has eliminated the two-sex version of the scale in favor of a single battery of questions applicable to both sexes (McGuire et al., 2020). This change may lead to a more reliable measurement of treatment-associated changes in future research. Other gender dysphoria scales also exist (Hakeem, Črnčec, Asghari-Fard, Harte, & Eapen, 2016; Iliadis et al., 2020) and may or may not be better suited for the purposes of measuring the impact of medical interventions on underlying gender distress. Gender dysphoria, of course, may also prove to be a more complex concept than can be measured by any scale.

Other limitations

The two Dutch studies were conducted without a control group (de Vries et al., 2011; de Vires et al., 2014). Nor could the researchers control for mental health interventions, which all the

subjects received in addition to hormones and surgery. The Dutch only evaluated mental health outcomes and did not assess physical health effects of hormones and surgery. The sample size was small: the final study reported the outcomes of only 55 children, and as few as 32 were evaluated on key measures of psychological outcomes.

It is important to realize that the Dutch sample was carefully selected, which introduced a source of bias, and also challenges the study's applicability. From the 196 adolescents initially referred, 111 were considered eligible to start puberty blockers, and of this group, only the 70 most mature and mentally stable who proceeded to cross-sex hormones were included in the study (de Vries et al., 2011). Of note, 97% of the selected cases were attracted to members of their natal sex at baseline. All were cross-sex identified, with no cases of non-binary identities. The final study only followed 55, rather than the original 70 cases, further excluding from reporting the outcomes of subjects who had experienced adverse events, including: one death from surgery-related complications and three cases of complications such as obesity and diabetes that rendered subjects ineligible for surgery. Three more subjects refused to be contacted or dropped out of care, which may mask adverse outcomes (de Vries et al., 2014).

There is no knowledge of the fate of 126 patients who did not participate in the Dutch study. Longer term outcomes of the subjects who did participate are lacking. We are aware of only one case of long-term follow-up for a female-to-male patient treated by the Dutch team in the 1990s. The case study describing the subject's functioning at the age of 33 found that the patient did not regret gender transition. However, he reported struggling with significant shame related to the appearance of his genitals and to his inability to sexually function; had problems maintaining long-term relationships; and experienced depressive symptoms (Cohen-Kettenis, Schagen, Steensma, de Vries, & Delemarre-van de Waal, 2011). Notably, these problems had not yet emerged when the same patient was assessed at the age of 20, when he reported high levels of satisfaction in general, and was "very satisfied with the results [of the metoidioplasty]" in particular (Cohen-Kettenis & van Goozen, 1998, p.248). Since the last round of psychological outcomes of the individuals in the Dutch study was obtained when the subjects were around 21 years of age (de Vries et al., 2014), it raises questions how they will fair in during the decade when new developmental tasks, such as, career development, forming long-term intimate relationships and friendships, or starting families come into focus.

As to the unknown outcomes of the patients rejected by the Dutch protocol, one study did report on 14 adolescents who sought gender reassignment in the same clinic, but were disqualified from treatment due to "psychological or environmental problems" (Smith, Van Goozen, & Cohen-Kettenis, 2001, p. 473). The study found that at follow-up 1-7 years after the original application, 11 of the 14 no longer wished to transition, and 2 others only slightly regretted not transitioning (Malone, D'Angelo, et al., 2021; Smith et al., 2001). This further underscores the importance of conducting research utilizing control groups and following the subjects for an extended period.

A recent attempt to replicate the results of the first Dutch study (de Vries et al., 2011) found no demonstrable psychological benefit from puberty blockade, but did find that the treatment adversely affected bone development (Carmichael et al., 2021). The final Dutch study (de Vries et al., 2014) has never been attempted to be replicated with or without a control group.

The scaling of the Dutch Protocol beyond original indications

The medical and surgical sequence of Dutch protocol has been aggressively scaled worldwide without the careful evaluations and vetting practiced by the Dutch. The protocol's original investigators have recently expressed concern that the interventions they described have been widely adopted on four continents without several of the protocol's essential discriminatory features (de Vries, 2020).

The extensive multi-year multidisciplinary evaluations of the children have been abbreviated or simply bypassed. The medical sequence is routinely used for children with post-pubertal onset of transgender identities complicated by mental health comorbidities (Kaltiala-Heino et al., 2018), and not just for those high-functioning adolescents with persistent early life cross-identifications, as was required by the Dutch protocol (de Vries & Cohen-Kettenis, 2012). Further, it has become increasingly common to socially transition children before puberty (Olson, Durwood, DeMeules, & McLaughlin, 2016), even though this was explicitly discouraged by the Dutch protocol at the time (de Vries & Cohen-Kettenis, 2012).

In addition, medical transition is frequently initiated much earlier than recommended by the original protocol (de Vries & Cohen-Kettenis, 2012). The authors of the protocol were aware that most children would have a spontaneous realignment of their gender identity with sex by going through early- to mid-stages of puberty (Cohen-Kettenis, Delemarre-van de Waal, & Gooren, 2008). The average age of initiating puberty blockade in the Dutch study was around 15. In contrast, currently the age limit has been lowered to the age of Tanner stage II, which can occur as early as 8-9 years (Hembree et al., 2017). Irreversible cross-sex hormones, initiated in the Dutch study at the average age of nearly 17, are currently commonly prescribed to 14-year-olds, and this lower age threshold has been recommended by draft recommendation by WPATH Standards of Care 8, the final version of which is due to be released in early 2022. The fact that children are transitioned before their identity is tested against the biological reality and before natural resolution of gender dysphoria has had a chance to occur is a major deviation from the original Dutch protocol. Systematic follow-up, reassessments, and tracking and publishing of outcomes are not performed.

As the lead Dutch researchers have begun to call for more research into the novel presentation of gender dysphoria in youth (de Vries, 2020; Voorzij, 2021) and question the wisdom of applying the hormonal and surgical treatment protocols to the newly presenting cases, many recently educated gender specialists mistakenly believe that the Dutch protocol proved the concept that its sequence helps all gender-dysphoric youth. Although aware of the Dutch study's importance, they seem to be unaware of its agreed upon limitations, and the Dutch clinicians' own discomfort that most new trans-identified adolescents presenting for care today significantly differ from the population the Dutch had originally studied. These facts, of course, underscore the need for a robust informed consent process.

The recommendations for informed consent process for children, adolescents, and young adults

Consent for all stages of gender transition should be explicit, not implied

Noninvasive medical care or care that carries little risk of harm does not require a signed informed consent document; rather, consent is implied through the act of a patient presenting for care. For example, when a parent brings in a child for a skin laceration or abscess, consent for sutures or simple incision and drainage is implied. Similarly, when a child presents with pneumonia and is hospitalized, consent for chest x-ray, IV fluids, and antibiotics is also implied. It is assumed that patients or their guardians agree to the interventions and understand the benefits and risks. When risks are greater, such as prior to surgery, chemotherapy, or another invasive procedure, an informed consent document is signed. Such situations require an explicit, or express informed consent.

In the context of interventions for gender dysphoria or gender incongruence, the uncertainties associated with puberty blocking, cross-sex hormones, and gender-affirmative surgeries are well-recognized (Manrique et al., 2018; National Institute for Health & Care Excellence, 2020a; 2020b; Wilson et al., 2018). In these cases, consent should be explicit rather than implied because of the complexity, uncertainty, and risks involved.

Informed consent for social transition represents a gray area. Evidence suggests that social transition is associated with the persistence of gender dysphoria (Hembree et al.,

2017; Steensma, McGuire, Kreukels, Beekman, & Cohen-Kettenis, 2013). This suggests that social gender transition is a form of a psychological intervention with potential lasting effects (Zucker, 2020). While the causality has not been proven, the possibility of iatrogenesis and the resulting exposure to the risks of future medical and surgical gender dysphoria treatments, qualifies social gender transition for explicit, rather than implied, consent.

Full unbiased disclosure of benefits, risks and alternatives is requisite

When mental health professionals are involved in evaluations and recommendations, the informed consent process begins either as part of an extended evaluation or is integrated in a psychotherapeutic process, separately or together, with the parents and patient. When pediatricians, nurse practitioners, or primary care physicians perform the initial evaluation, the informed consent process is more likely to be labeled as such in a briefer series of meetings.

In all settings, the informed consent discussions for gender-affirmative care should include three central ideas:

1. The decision to initiate gender transition may predispose the child to persist in their transgender identity long-term.
2. Many of the physical changes contemplated and undertaken are irreversible.
3. Careful long-term studies have not been done to verify that these interventions enable better physical and mental health or improved social functioning, or that they do not cause harm.

The informed consent process, culminating with a signed document, signifies that parents and patient have been educated about the short- and long-term risks, benefits and uncertainties associated with all relevant stages of the gender-affirmative interventions. The process must also inform the patients and families about the full range of alternative treatments, including the choice of not socially or medically treating the child's or adolescent's current state of gender/body incongruence.

Decisional capacity to consent needs to be assessed and family should be involved

Trans-identified youth typically present themselves as strongly desiring hormones and ultimately, surgery. It should not be assumed that their eagerness is matched with the capacity to carefully consider the consequences of their realized desires. Trans-identified youth younger than the age of consent should be part of the informed consent process, but they may not be mature enough to recognize or admit their concerns about the proposed intervention. For this reason, it is the parents who, after careful consideration, are responsible for signing an informed consent document.

The issue of the exact age at which adolescents are mature enough to consent to gender transition has proven contentious: courts have been asked to decide about competence to consent to gender-affirmative hormones for youth in the United Kingdom and Australia (Ouliaris, 2021). In the United States, the legal age for medical consent for gender-affirmative interventions varies by state.

When patients are age 18 and older, and in some jurisdictions as young as age 15 (Right to medical or dental treatment without parental consent, 2010), they do not legally require parental approval for medical procedures. But because an individual's change of gender has profound implications for parents, siblings, and other family members, it is usually prudent for clinicians to seek their input directly or indirectly during the informed consent process. This is done by requesting a meeting with the parents.

A recent study by a Dutch research team attempted to evaluate the decisional capacity of adolescents embarking on gender transition (Vrouenraets, de Vries, de Vries, van der Miesen, & Hein, 2021). The researchers administered the MacCAT-T tool, comprised of the *understanding*, *appreciating*, *reasoning*, and *expressing a choice* domains, to 74 adolescents who were 14.7 years old on average (with the minimum age of 10). They concluded that the adolescents were competent to consent for starting pubertal suppression, calling for similar research for the <12 group, particularly because "birth-assigned girls … may benefit from puberty suppression as early as 9 years of age" (Vrouenraets et al., 2021 p.7).

This study suffers from two significant limitations involving the MacCAT-T tool. It was never designed for children. Rather, it was designed to assess medical consent capacities of adults suffering from conditions such as dementia, schizophrenia, and other psychiatric disorders. There is a fundamental lack of equivalency between consenting to treatment by adults with cognitive impairments and obtaining consent from healthy children whose age-appropriate cognitive capacities are intact, but who lack the requisite life experiences to consent to profound life-changing medical interventions. We doubt, for example, whether even highly intelligent children who have not had sexual experiences can meaningfully comprehend the loss of future sexual function and reproductive abilities.

In addition, even for adults, the MacCAT-T tool has been criticized for its exclusive focus on cognitive aspects of capacity, failing to account for the non-cognitive aspects such as values, emotions and other biographic and context specific aspects inherent in the complexity of the decision process in real life (Breden & Vollmann, 2004). Children's values and emotions undergo tremendous change during the process of maturation.

The authors' conclusion about their young patients' competence to consent should be compared with what a panel of judges wrote in the challenge to the Tavistock treatment protocol (Bell v Tavistock, 2020):

> …the clinical intervention we are concerned with here is different in kind to other treatments or clinical interventions. In other cases, medical treatment is used to remedy, or alleviate the symptoms of, a diagnosed physical or mental condition, and the effects of that treatment are direct and usually apparent. The position in relation to puberty blockers would not seem to reflect that description. [para 135]

> …we consider the treatment in this case to be in entirely different territory from the type of medical treatment which is normally being considered. [para 140]

> … the combination here of lifelong and life changing treatment being given to children, with very limited knowledge of the degree to which it will or will not benefit them, is one that gives significant grounds for concern. [para 143]

It seems clear that perceptions of children as young as 10 years of age as medically competent vary by country, state, and the institution where the doctor works, and, by clinicians' beliefs about the long-term benefits of these interventions. We maintain that the claim that kids can consent to extreme life-altering interventions is a fundamentally a philosophical claim (Clark & Virani, 2021). Our view in this matter is that consent is primarily a parental function.

Informed consent should be viewed as a process rather than an event

Most institutions that care for transgender-identified individuals have devised obligatory consent forms that outline the risks and uncertainties of hormonal and surgical gender-affirmative interventions. However, the requisite signatures are frequently collected in a perfunctory manner (Schulz, 2018), akin to signatures collected ahead of a common surgical procedure. The purpose of such informed consent documents appears to be to protect practitioners from lawsuits, rather than attend to the primary ethical foundation of the process.

Although obtaining the signatures is important, the signed document should signify that the process of informed consent has been undertaken over an extended time period and is not simply quickly completed (Vrouenraets et al., 2021). We believe the latter approach poses an ethical concern (Levine, 2019).

The internal dynamics of the trans-identified young person and their families vary considerably. Parental capacities, their private marital and intrafamilial relationships, their cultural awareness, religious and political sensibilities all influence the amount of time necessary to undertake a thorough informed consent process. It is not prudent to suggest a specific duration for the process of informed consent, other than to emphasize that it requires a slow, patient, thoughtful question and answer period as the parents and patient contemplate the meaning of what is known and unknown and whether to embark on alternative approaches to the management of gender dysphoria before the age of full neurological maturity has been reached, mental health comorbidities have been addressed, and a true informed consent by the patient is more likely.

Final thoughts

Sixty years of experience providing medical and surgical assistance to transgender-identified persons have seen many changes in who is treated, when they are treated, and how they are treated. Today, the emphasis has shifted to the treatment of the unprecedented numbers of youth declaring a trans identity. As adolescents pursue social, medical, and surgical interventions, health care providers may experience unease about patients' cognitive and emotional capacities to make decisions with life-changing and enduring consequences. An unrushed informed consent process helps the provider, the parents, and the patient.

Three issues tend to obscure the salience of informed consent: conspicuous mental health problems, uncertainty about the minor's personal capacity to understand the irreversible nature of the interventions, and parental disagreement. Physical and psychiatric comorbidities can contribute to the formation of a new identity, develop as its consequence, or bear no connection to it. Assessing mental health and the minor's functionality is one of the reasons why rapid affirmative care may be dangerous for patients and their families. For example, when situations involve autism, learning disorders, sexual abuse, attachment problems, trauma, separation anxiety, previous depressed or anxious states, neglect, low IQ, past psychotic illness, eating disorders or parental mental illness, clinicians must choose between ignoring these potentially causative conditions and comorbidities and providing appropriate treatment before affirmative care (D'Angelo et al., 2020).

For youth less than the age of majority, informed consent via parents provides a legal route for treatment but it does not make the decisions to transition, provide hormones, or surgically remove breasts or testes less fraught with uncertainty. The best that health professionals can do is to ensure that the consent process informs the patient and parents of the current state of science, which is sorely lacking in quality research. It is the professionals' responsibility to ensure that the benefits patients and parents seek, and the risks they are assuming, are clearly appreciated as they prepare to make this often-excruciating decision.

Young people who have reached the age of majority, but who have not reached full maturation of the brain represent a unique challenge. It is well-recognized that brain remodeling proceeds through the third decade of life, with the prefrontal cortex responsible for executive function and impulse control the last to mature (Katz et al., 2016). The growing number of detransitioners who had been old enough to legally consent to transition, but who no longer felt they were transgender upon reaching their mid-20's, raises additional concerns about this vulnerable age group (Littman, 2021; Vandenbussche, 2021).

When the clinician is uncertain whether a young person is competent to comprehend the implications of the desired treatment—that is, when informed consent cannot inform the patient—the clinician may need more time with the patient. When parents or guardians do

not agree about whether to use puberty blockers or cross-sex hormones, clinicians are in an uneasy spot (Levine, 2021). This occurs in both intact and divorced families. Australia has given legal instructions to clinicians facing these uncertainties: the court is to be asked to decide (Ouliaris, 2021). The court system in the UK has been grappling with similar issues in recent years. While it is a rare case that ends up in a courtroom, clinicians devoted to a deliberate informed consent process are still likely to encounter ethical dilemmas that they cannot resolve.

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Evidence review: Gonadotrophin releasing hormone analogues for children and adolescents with gender dysphoria

This document will help inform Dr Hilary Cass' independent review into gender identity services for children and young people. It was commissioned by NHS England and Improvement who commissioned the Cass review. It aims to assess the evidence for the clinical effectiveness, safety and cost-effectiveness of gonadotrophin releasing hormone (GnRH) analogues for children and adolescents aged 18 years or under with gender dysphoria.

The document was prepared by NICE in October 2020.

The content of this evidence review was up to date on 14 October 2020. See summaries of product characteristics (SPCs), British National Formulary (BNF) or the Medicines and Healthcare products Regulatory Agency (MHRA) or NICE websites for up-to-date information.

Contents

1. Introduction

This review aims to assess the evidence for the clinical effectiveness, safety and cost-effectiveness of gonadotrophin releasing hormone (GnRH) analogues for children and adolescents aged 18 years or under with gender dysphoria. The review follows the NHS England Specialised Commissioning process and template and is based on the criteria outlined in the PICO framework (see appendix A). This document will help inform Dr Hilary Cass' independent review into gender identity services for children and young people.

Gender dysphoria in children, also known as gender identity disorder or gender incongruence of childhood (World Health Organisation 2020), refers to discomfort or distress that is caused by a discrepancy between a person's gender identity (how they see themselves[1] regarding their gender) and that person's sex assigned at birth and the associated gender role, and/or primary and secondary sex characteristics (Diagnostic and Statistical Manual of Mental Disorders 2013).

GnRH analogues suppress puberty by delaying the development of secondary sexual characteristics. The intention is to alleviate the distress associated with the development of secondary sex characteristics, thereby providing a time for on-going discussion and exploration of gender identity before deciding whether to take less reversible steps. In England, the GnRH analogue triptorelin (a synthetic decapeptide analogue of natural GnRH, which has marketing authorisations for the treatment of prostate cancer, endometriosis and precocious puberty [onset before 8 years in girls and 10 years in boys]) is used for this purpose. The use of triptorelin for children and adolescents with gender dysphoria is off-label.

For children and adolescents with gender dysphoria it is recommended that management plans are tailored to the needs of the individual, and aim to ameliorate the potentially negative impact of gender dysphoria on general developmental processes, support young people and their families in managing the uncertainties inherent in gender identity development and provide on-going opportunities for exploration of gender identity. The plans may also include psychological support and exploration and, for some individuals, the use of GnRH analogues in adolescence to suppress puberty; this may be followed later with gender-affirming hormones of the desired sex (NHS England 2013).

2. Executive summary of the review

Nine observational studies were included in the evidence review. Five studies were retrospective observational studies (Brik et al. 2020, Joseph et al. 2019, Khatchadourian et al. 2014, Klink et al. 2015, Vlot et al. 2017), 3 studies were prospective longitudinal observational studies (Costa et al. 2015, de Vries et al. 2011, Schagen et al. 2016) and 1 study was a cross-sectional study (Staphorsius et al. 2015). Two studies (Costa et al. 2015

[1] Gender refers to the roles, behaviours, activities, attributes and opportunities that any society considers appropriate for girls and boys, and women and men (World Health Organisation, Health Topics: Gender).

and Staphorsius et al. 2015) provided comparative evidence and the remaining 7 studies used within-person, before and after comparisons.

The terminology used in this topic area is continually evolving and is different depending on stakeholder perspectives. In this evidence review we have used the phrase 'people's assigned sex at birth' rather than natal or biological sex, gonadotrophin releasing hormone (GnRH) analogues rather than 'puberty blockers' and gender-affirming hormones rather than 'cross sex hormones'. The research studies included in this evidence review may use historical terms which are no longer considered appropriate.

In children and adolescents with gender dysphoria, what is the clinical effectiveness of treatment with GnRH analogues compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention?

Critical outcomes

The critical outcomes for decision making are the impact on gender dysphoria, mental health and quality of life. The quality of evidence for these outcomes was assessed as very low certainty using modified GRADE.

Impact on gender dysphoria
The study by de Vries et al. 2011 in 70 adolescents with gender dysphoria found that treatment with GnRH analogues before starting gender-affirming hormones does not affect gender dysphoria (measured using the Utrecht Gender Dysphoria Scale [UGDS]). The mean (±SD) gender dysphoria (UGDS) score was not statistically significantly different at baseline compared with follow-up (n=41, 53.20 [±7.91] versus 53.9 [±17.42], p=0.333).

Impact on mental health
The study by de Vries et al. 2011 in 70 adolescents with gender dysphoria found that treatment with GnRH analogues before starting gender-affirming hormones may reduce depression (measured using the Beck Depression Inventory-II [BDI-II]). The mean [±SD] BDI score was statistically significantly lower (improved) from baseline compared with follow-up (n=41, 8.31 [±7.12] versus 4.95 [±6.72], p=0.004).

The study by de Vries et al. 2011 in 70 adolescents with gender dysphoria found that treatment with GnRH analogues before starting gender-affirming hormones does not affect anger (measured using the Trait Anger Scale [TPI]). The mean [±SD] anger (TPI) score was not statistically significantly different at baseline compared with follow-up (n=41, 18.29 [±5.54] versus 17.88 [±5.24], p=0.503).

The study by de Vries et al. 2011 in 70 adolescents with gender dysphoria found that treatment with GnRH analogues before starting gender-affirming hormones does not affect anxiety (measured using the Trait Anxiety Scale [STAI]). The mean [±SD] anxiety (STAI) score was not statistically significantly different at baseline compared with follow-up (n=41, 39.43 [±10.07] versus 37.95 [±9.38], p=0.276).

Impact on quality of life
No evidence was identified.

Important outcomes

The important outcomes for decision making are impact on body image, psychosocial impact, engagement with health care services, impact on extent of and satisfaction with surgery and stopping treatment. The quality of evidence for all these outcomes was assessed as very low certainty using modified GRADE.

Impact on body image
The study by de Vries et al. 2011 in 70 adolescents with gender dysphoria found that treatment with GnRH analogues before starting gender-affirming hormones does not affect body image (measured using the Body Image Scale [BIS]). The mean [±SD] body image (BIS) scores were not statistically significantly different from baseline compared with follow-up for primary sexual characteristics (n=57, 4.10 [±0.56] versus 3.98 [±0.71], p=0.145), secondary sexual characteristics (n=57, 2.74 [±0.65] versus 2.82 [±0.68], p=0.569) or neutral body characteristics (n=57, 2.41 [±0.63] versus 2.47 [±0.56], p=0.620).

Psychosocial impact
The study by de Vries et al. 2011 in 70 adolescents with gender dysphoria found that treatment with GnRH analogues before starting gender-affirming hormones may improve psychosocial impact over time (measured using the Children's Global Assessment Scale [CGAS]). The mean [±SD] CGAS score was statistically significantly higher (improved) from baseline compared with follow-up (n=41, 70.24 [±10.12] versus 73.90 [±9.63], p=0.005).

This study also found that psychosocial functioning may improve over time (measured using the Child Behaviour Checklist [CBCL] and the self-administered Youth Self-Report [YSR]). The mean [±SD] CBCL scores were statistically significantly lower (improved) from baseline compared with follow-up for Total T score (n=54, 60.70 [±12.76] versus 54.46 [±11.23], p<0.001), internalising T score (n=54, 61.00 [±12.21] versus 52.17 [±9.81], p<0.001) and externalising T score (n=54, 58.04 [±12.99] versus 53.81 [±11.86], p=0.001). The mean [±SD] YSR scores were statistically significantly lower (improved) from baseline compared with follow-up for Total T score (n=54, 55.46 [±11.56] versus 50.00 [±10.56], p<0.001), internalising T score (n=54, 56.04 [±12.49] versus 49.78 [±11.63], p<0.001) and externalising T score (n=54, 53.30 [±11.87] versus 49.98 [±9.35], p=0.009). The proportion of adolescents scoring in the clinical range decreased from baseline to follow up on the CBCL total problem scale (44.4% versus 22.2%, p=0.001) and the internalising scale of the YSR (29.6% versus 11.1%, p=0.017).

The study by Costa et al. 2015 in 201 adolescents with gender dysphoria who had 6 months of psychological support followed by either GnRH analogues and continued psychological support or continued psychological support only, found that during treatment with GnRH analogues psychosocial impact in terms of global functioning may improve over time (measured using the CGAS). In the group receiving GnRH analogues, the mean [±SD] CGAS score was statistically significantly higher (improved) after 6 months (n=60, 64.70 [±13.34]) and 12 months (n=35, 67.40 [±13.39]) compared with baseline (n=101, 58.72 [±11.38], p=0.003 and p<0.001, respectively). However, there was no statistically significant difference in global functioning (CGAS scores) between the group receiving GnRH analogues plus psychological support and the group receiving psychological support only at any time point.

The study by Staphorsius et al. 2015 in 40 adolescents with gender dysphoria (20 of whom were receiving GnRH analogues) gave mean [±SD] CBCL scores for each group, but statistical analysis is unclear (transfemales receiving GnRH analogues 57.4 [±9.8], transfemales not receiving GnRH analogues 58.2 [±9.3], transmales receiving GnRH analogues 57.5 [±9.4], transmales not receiving GnRH analogues 63.9 [±10.5]).

Engagement with health care services
The study by Brik et al. 2018 in 143 children and adolescents with gender dysphoria receiving GnRH analogues found that 9 adolescents in the original sampling frame (9/214, 4.2%) were excluded from the study because they stopped attending appointments.

The study by Costa et al. 2015 in 201 adolescents with gender dysphoria who had 6 months of psychological support followed by either GnRH analogues and continued psychological support or continued psychological support only had a large loss to follow-up over time. The sample size at baseline and 6 months was 201, which dropped by 39.8% to 121 after 12 months and by 64.7% to 71 at 18 months follow-up. No explanation of the reasons for loss to follow-up are reported.

Impact on extent of and satisfaction with surgery
No evidence was identified.

Stopping treatment
The study by Brik et al. 2018 in 143 children and adolescents with gender dysphoria receiving GnRH analogues reported the reasons for stopping GnRH analogues. During the follow-up period 6.2% (9/143) of adolescents had stopped GnRH analogues after a median duration of 0.8 years (range 0.1 to 3.0). Five adolescents stopped treatment because they no longer wished to receive gender-affirming treatment for various reasons. In 4 adolescents (all transmales), GnRH analogues were stopped mainly because of adverse effects (such as mood and emotional lability), although they wanted to continue treatments for gender dysphoria.

The study by Khatchadourian et al. 2014 in 27 adolescents with gender dysphoria who started GnRH analogues reported the reasons for stopping them. Eleven out of 26 where data was available (42%) stopped GnRH analogues during follow up.

In children and adolescents with gender dysphoria, what is the short-term and long-term safety of GnRH analogues compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention?

Evidence was available for bone density, cognitive development or functioning, and other safety outcomes. The quality of evidence for all these outcomes was assessed as very low certainty using modified GRADE.

Bone density
The study by Joseph et al. 2019 in 70 adolescents with gender dysphoria found that GnRH analogues may reduce the expected increase in lumbar or femoral bone density (measured with the z-score). However, the z-scores were largely within 1 standard deviation of normal,

and actual lumbar or femoral bone density values were not statistically significantly different between baseline and follow-up:

- The mean z-score [±SD] for lumbar bone mineral apparent density (BMAD) was statistically significantly lower at 1 year compared with baseline in transfemales (baseline 0.859 [±0.154], 1 year −0.228 [±1.027], p=0.000) and transmales (baseline −0.186 [±1.230], 1 year −0.541 [±1.396], p=0.006).
- The mean z-score [±SD] for lumbar BMAD was statistically significantly lower after receiving GnRH analogues for 2 years compared with baseline in transfemales (baseline 0.486 [±0.809], 2 years −0.279 [±0.930], p=0.000) and transmales (baseline −0.361 [±1.439], 2 years −0.913 [±1.318], p=0.001).
- The mean z-score [±SD] for femoral neck bone mineral density (BMD) was statistically significantly lower after receiving GnRH analogues for 2 years compared with baseline in transfemales (baseline 0.0450 [±0.781], 2 years −0.600 [±1.059], p=0.002) and transmales (baseline −1.075 [±1.145], 2 years −1.779 [±0.816], p=0.001).

The study by Klink et al. 2015 in 34 adolescents with gender dysphoria found that GnRH analogues may reduce the expected increase in lumbar (transmales only), but not femoral bone density. However, the z-scores are largely within 1 standard deviation of normal. Actual lumbar or femoral bone density values were not statistically significantly different between baseline and follow-up (apart from BMD measurements in transmales):

- The mean z-score [±SD] for lumbar BMAD was not statistically significantly different between starting GnRH analogues and starting gender-affirming hormones in transfemales, but was statistically significantly lower when starting gender-affirming hormones in transmales (GnRH analogues 0.28 [±0.90], gender-affirming hormones −0.50 [±0.81], p=0.004).

The study by Vlot et al. 2017 in 70 adolescents with gender dysphoria found that GnRH analogues may reduce the expected increase in lumbar or femoral bone density. However, the z-scores were largely within 1 standard deviation of normal. Actual lumbar or femoral bone density values were not statistically significantly different between baseline and follow-up (apart from in transmales with a bone age ≥14 years). This study reported change in bone density from starting GnRH analogues to starting gender-affirming hormones by bone age:

- The median z-score [range] for lumbar BMAD in transfemales with a bone age of <15 years was statistically significantly lower at starting gender-affirming hormones than at starting GnRH analogues (GnRH analogues −0.20 [−1.82 to 1.18], gender-affirming hormones −1.52 [−2.36 to 0.42], p=0.001) but was not statistically significantly different in transfemales with a bone age ≥15 years.
- The median z-score [range] for lumbar BMAD in transmales with a bone age of <14 years was statistically significantly lower at starting gender-affirming hormones than at starting GnRH analogues (GnRH analogues −0.05 [−0.78 to 2.94], gender-affirming hormones −0.84 [−2.20 to 0.87], p=0.003) and in transmales with a bone age ≥14 years (GnRH analogues 0.27 [−1.60 to 1.80], gender-affirming hormones −0.29 [−2.28 to 0.90], p≤0.0001).

- The median z-score [range] for femoral neck BMAD in transfemales with a bone age of <15 years was not statistically significantly lower at starting gender-affirming hormones than at starting GnRH analogues (GnRH analogues −0.71 [−3.35 to 0.37], gender-affirming hormones −1.32 [−3.39 to 0.21], p≤0.1) or in transfemales with a bone age ≥15 years (GnRH analogues −0.44 [−1.37 to 0.93], gender-affirming hormones −0.36 [−1.50 to 0.46]).
- The z-score for femoral neck BMAD in transmales with a bone age of <14 years was not statistically significantly lower at starting gender-affirming hormones than at starting GnRH analogues (GnRH analogues −0.01 [−1.30 to 0.91], gender-affirming hormone −0.37 [−2.28 to 0.47]) but was statistically significantly lower in transmales with a bone age ≥14 years (GnRH analogues 0.27 [−1.39 to 1.32], gender-affirming hormones −0.27 [−1.91 to 1.29], p=0.002).

Cognitive development or functioning

The study by Staphorsius et al. 2015 in 40 adolescents with gender dysphoria (20 of whom were receiving GnRH analogues) measured cognitive development or functioning (using an IQ test, and reaction time and accuracy measured using the Tower of London task):

- The mean (±SD) IQ in transfemales receiving GnRH analogues was 94.0 (±10.3) and 109.4 (±21.2) in the control group. In transmales receiving GnRH analogues the mean (±SD) IQ was 95.8 (±15.6) and 98.5 (±15.9) in the control group.
- The mean (±SD) reaction time in transfemales receiving GnRH analogues was 10.9 (±4.1) and 9.9 (±3.1) in the control group. In transmales receiving GnRH analogue it was 9.9 (±3.1) and 10.0 (±2.0) in the control group.
- The mean (±SD) accuracy score in transfemales receiving GnRH analogues was 73.9 (±9.1) and 83.4 (±9.5) in the control group. In transmales receiving GnRH analogues it was 85.7 (±10.5) and 88.8 (±9.7) in the control group.

No statistical analyses or interpretation of the results was reported.

Other safety outcomes

The study by Schagen et al. 2016 in 116 adolescents with gender dysphoria found that GnRH analogues do not affect renal or liver function:

- There was no statistically significant difference between baseline and 1 year results for serum creatinine in transfemales, but there was a statistically significant decrease between baseline and 1 year in transmales (p=0.01).
- Glutamyl transferase, alanine aminotransferase (ALT), and aspartate aminotransferase (AST) levels did not significantly change from baseline to 12 months of treatment.

The study by Khatchadourian et al. 2014 in 27 adolescents with gender dysphoria who started GnRH analogues narratively reported adverse effects from GnRH analogues in 26 adolescents:

- 1 transmale developed sterile abscesses; they were switched from leuprolide acetate to triptorelin, and this was well tolerated
- 1 transmale developed leg pains and headaches, which eventually resolved
- 1 participant gained 19 kg within 9 months of starting GnRH analogues.

In children and adolescents with gender dysphoria, what is the cost-effectiveness of GnRH analogues compared to one or a combination of psychological support, social transitioning to the desired gender or no intervention?

No cost-effectiveness evidence was found for GnRH analogues in children and adolescents with gender dysphoria.

From the evidence selected, are there any subgroups of children and adolescents with gender dysphoria that may benefit from GnRH analogues more than the wider population of interest?

Some studies reported data separately for the following subgroups of children and adolescents with gender dysphoria: sex assigned at birth males (transfemales) and sex assigned at birth females (transmales). This included some direct comparisons of these subgroups, and differences were largely seen at baseline as well as follow up. No evidence was found for other specified subgroups.

Sex assigned at birth males (transfemales)
Impact on gender dysphoria
The study by Costa et al. 2015 in 201 adolescents with gender dysphoria who had 6 months of psychological support followed by either GnRH analogues and continued psychological support or continued psychological support only, found that gender dysphoria (measured using the UGDS) in sex assigned at birth males is lower than in sex assigned at birth females. Sex assigned at birth males had a statistically significantly lower (improved) mean [±SD] UGDS score of 51.6 [±9.7] compared with sex assigned at birth females (56.1 [±4.3], p<0.001), but it was not reported if this was at baseline or follow-up.

The study by de Vries et al. 2011 in 70 adolescents with gender dysphoria found that gender dysphoria (measured using the UGDS) in sex assigned at birth males is lower than in sex assigned at birth females at baseline and follow up. The mean [±SD] UGDS score was statistically significantly lower (improved) in sex assigned at birth males compared with sex assigned at birth females at baseline (n=not reported, mean UGDS score: 47.95 [±9.70] versus 56.57 [±3.89]) and follow up (n=not reported, 49.67 [±9.47] versus 56.62 [±4.00]); between sex difference p<0.001).

Impact on mental health
The study by de Vries et al. 2011 in 70 adolescents with gender dysphoria found that the impact on mental health (depression, anger and anxiety) may be different in sex assigned at birth males compared with sex assigned at birth females. Over time there was no statistically significant difference between sex assigned at birth males and sex assigned at birth females for depression, but sex assigned at birth males had statistically significantly lower levels of anger and anxiety than sex assigned at birth females at baseline and follow up.

- The mean [±SD] depression (BDI-II) score was not statistically significantly different in sex assigned at birth males compared with sex assigned at birth females at baseline (n=not reported, mean BDI score [±SD]: 5.71 [±4.31] versus 10.34 [±8.24]) and follow-up (n=not reported, 3.50 [±4.58] versus 6.09 [±7.93]), between sex difference p=0.057

- The mean [±SD] anger (TPI) score was statistically significantly lower (improved) in sex assigned at birth males compared with sex assigned at birth females at baseline (n=not reported, mean TPI score [±SD]: 5.22 [±2.76] versus 6.43 [±2.78]) and follow-up (n=not reported, 5.00 [±3.07] versus 6.39 [±2.59]), between sex difference p=0.022
- The mean [±SD] anxiety (STAI) score was statistically significantly lower (improved) in sex assigned at birth males compared with sex assigned at birth females at baseline (n=not reported, mean STAI score [±SD]: 4.33 [±2.68] versus 7.00 [±2.36]) and follow-up (n=not reported, 4.39 [±2.64] versus 6.17 [±2.69]), between sex difference p<0.001.

Impact on body image

The study by de Vries et al. 2011 in 70 adolescents with gender dysphoria found that the impact on body image may be different in sex assigned at birth males compared with sex assigned at birth females. Sex assigned at birth males are less dissatisfied with their primary and secondary sex characteristics than sex assigned at birth females at both baseline and follow up, but the satisfaction with neutral body characteristics is not different.

- The mean [±SD] BIS score for primary sex characteristics was statistically significantly lower (improved) in sex assigned at birth males compared with sex assigned at birth females at baseline (n=not reported, mean BIS score [±SD]: 4.02 [±0.61] versus 4.16 [±0.52]) and follow up (n=not reported, 3.74 [±0.78] versus 4.17 [±0.58]) between sex difference p=0.047.
- The mean [±SD] BIS score for secondary sex was statistically significantly lower (improved) in sex assigned at birth males compared with sex assigned at birth females at baseline (n=not reported, mean BIS score [±SD]: 2.66 [±0.50] versus 2.81 [±0.76]) and follow up (n=not reported, 2.39 [±0.69] versus 3.18 [±0.42]), between sex difference p=0.001.
- The mean [±SD] BIS score for neutral body characteristics was not statistically significantly different in sex assigned at birth males compared with sex assigned at birth females at baseline (n=not reported, 2.60 [±0.58] versus 2.24 [±0.62], between sex difference p=0.777).

Psychosocial impact

The study by Costa et al. 2015 in 201 adolescents with gender dysphoria who had 6 months of psychological support followed by either GnRH analogues and continued psychological support or continued psychological support only, found that sex assigned at birth males had statistically significant lower mean [±SD] CGAS scores at baseline compared with sex assigned at birth females (n=201, 55.4 [±12.7] versus 59.2 [±11.8], p=0.03), but no conclusions could be drawn.

The study by de Vries et al. 2011 in 70 adolescents with gender dysphoria found that psychosocial impact in terms of global functioning (CGAS) and psychosocial functioning (CBCL and YSR) may be different in sex assigned at birth males compared with sex assigned at birth females, but no conclusions could be drawn.

- There was no statistically significant difference between sex assigned at birth males and sex assigned at birth females (at baseline or follow up) for the CBCL Total T

score, the CBCL internalising T score, the YSR Total T score or the YSR internalising T score.

- Sex assigned at birth males had statistically higher mean [±SD] CGAS scores compared with sex assigned at birth females at baseline (n=54, 73.10 [±8.44] versus 67.25 [±11.06]) and follow up (n=54, 77.33 [±8.69] versus 70.30 [±9.44]), between sex difference p=0.021.
- Sex assigned at birth males had statistically lower mean [±SD] CBCL externalising T scores compared with sex assigned at birth females at baseline (n=54, 54.71 [±12.91] versus 60.70 [±12.64]) and follow up (n=54, 48.75 [±10.22] versus 57.87 [±11.66]), between sex difference p=0.015.
- Sex assigned at birth males had statistically lower mean [±SD] YSR externalising T scores compared with sex assigned at birth females at both baseline (n=54, 48.72 [±11.38] versus 57.24 [±10.59]) and follow up (n=54, 46.52 [±9.23] versus 52.97 [±8.51]), between sex difference p=0.004.

Bone density

The studies by Joseph et al. 2019, Klink et al. 2015 and Vlot et al. 2017 provided evidence on bone density in sex assigned at birth males (see above for details).

Cognitive development or functioning

The study by Staphorsius et al. 2015 provided evidence on cognitive development or functioning in sex assigned at birth males (see above for details).

Other safety outcomes

The study by Schagen et al. 2016 provided evidence on renal function in sex assigned at birth males (see above).

Sex assigned at birth females (transmales)

Impact on gender dysphoria

The studies by de Vries et al. 2011 and Costa et al. 2015 found that gender dysphoria (measured using the UGDS) in sex assigned at birth females is higher than in sex assigned at birth males at baseline and follow up (see above for details).

Impact on mental health

The study by de Vries et al. 2011 found that the impact on mental health (depression, anger and anxiety) may be different in sex assigned at birth females compared with sex assigned at birth males. Over time there was no statistically significant difference between sex assigned at birth females and sex assigned at birth males for depression, but sex assigned at birth females had statistically significantly greater levels of anger and anxiety than sex assigned at birth males at both baseline and follow up (see above for details).

Impact on body image

The study by de Vries et al. 2011 found that the impact on body image may be different in sex assigned at birth females compared with sex assigned at birth males. Sex assigned at birth females are more dissatisfied with their primary and secondary sex characteristics than sex assigned at birth males at both baseline and follow up, but the satisfaction with neutral body characteristics is not different (see above for details).

Psychosocial impact
The studies by de Vries et al. 2011 and Costa et al. 2015 found that psychosocial impact in terms of global functioning (CGAS) and psychosocial functioning (CBCL and YSR) may be different in sex assigned at birth females compared with sex assigned at birth males, but no conclusions could be drawn (see above for details).

Bone density
The studies by Joseph et al. 2019, Klink et al. 2015 and Vlot et al. 2017 provided evidence on bone density in sex assigned at birth females (see above for details).

Cognitive development or functioning
The study by Staphorsius et al. 2015 provided evidence on cognitive development or functioning in sex assigned at birth females (see above for details).

Other safety outcomes
The study by Schagen et al. 2016 provided evidence on renal function in sex assigned at birth females (see above for details).

From the evidence selected:

(a) what are the criteria used by the research studies to define gender dysphoria, gender identity disorder and gender incongruence of childhood?

(b) what were the ages at which participants commenced treatment with GnRH analogues?

(c) what was the duration of treatment with GnRH analogues?

All studies that reported diagnostic criteria for gender dysphoria (6/9 studies) used the version of the Diagnostic and Statistical Manual of Mental Disorders (DSM) criteria that was in use at the time. In 5 studies (Costa et al. 2015, Klink et al. 2015, Schagen et al. 2016, Staphorsius et al. 2015 and Vlot et al. 2017) the DSM-fourth edition, text revision (IV-TR) criteria were used. The study by Brik et al. 2020 used DSM-V criteria. It was not reported how gender dysphoria was defined in the remaining 3 studies.

The studies show variation in the age (11 to 18 years old) at which children and adolescents with gender dysphoria started GnRH analogues.

Most studies did not report the duration of treatment with GnRH analogues (Joseph et al. 2019, Khatchadourian et al. 2014, Vlot et al. 2017, Costa et al. 2015, de Vries et al. 2011, Schagen et al. 2016), but where this was reported (Brik et al. 2020, Klink et al. 2015, Staphorsius et al. 2015) there was a wide variation ranging from a few months to about 5 years.

Discussion

A key limitation to identifying the effectiveness and safety of GnRH analogues for children and adolescents with gender dysphoria is the lack of reliable comparative studies. The lack of clear, expected outcomes from treatment with a GnRH analogue (the purpose of which is to suppress secondary sexual characteristics which may cause distress from unwanted pubertal changes) also makes interpreting the evidence difficult.

The studies included in this evidence review are all small, uncontrolled observational studies, which are subject to bias and confounding, and all the results are of very low certainty using modified GRADE. They all reported physical and mental health comorbidities and concomitant treatments very poorly. All the studies are from a limited number of, mainly European, care facilities. They are described as either tertiary referral or expert services but the low number of services providing such care and publishing evidence may bias the results towards the outcomes in these services only and limit extrapolation.

Many of the studies did not report statistical significance or confidence intervals. Changes in outcome scores for clinical effectiveness and bone density were assessed with regards to statistical significance. However, there is relatively little interpretation of whether the changes in outcomes are clinically meaningful.

In the observational, retrospective studies providing evidence on bone density, participants acted as their own controls and change in bone density was determined between starting GnRH analogues and follow up. Observational studies such as these can only show an association with GnRH analogues and bone density; they cannot show that GnRH analogues caused any differences in bone density seen. Because there was no comparator group and participants acted as their own controls, it is not known whether the findings are associated with GnRH analogues or due to changes over time.

Conclusion

The results of the studies that reported impact on the critical outcomes of gender dysphoria and mental health (depression, anger and anxiety), and the important outcomes of body image and psychosocial impact (global and psychosocial functioning), in children and adolescents with gender dysphoria are of very low certainty using modified GRADE. They suggest little change with GnRH analogues from baseline to follow-up.

Studies that found differences in outcomes could represent changes that are either of questionable clinical value, or the studies themselves are not reliable and changes could be due to confounding, bias or chance. It is plausible, however, that a lack of difference in scores from baseline to follow-up is the effect of GnRH analogues in children and adolescents with gender dysphoria, in whom the development of secondary sexual characteristics might be expected to be associated with an increased impact on gender dysphoria, depression, anxiety, anger and distress over time without treatment. The study by de Vries et al. 2011 reported statistically significant reductions in the Child Behaviour Checklist (CBCL) and Youth Self-Report (YSR) scores from baseline to follow up, which include measures of distress. As the aim of GnRH analogues is to reduce distress caused by the development of secondary sexual characteristics, this may be an important finding. However, as the studies all lack appropriate controls who were not receiving GnRH analogues, any positive changes could be a regression to mean.

The results of the studies that reported bone density outcomes suggest that GnRH analogues may reduce the expected increase in bone density (which is expected during puberty). However, as the studies themselves are not reliable, the results could be due to confounding, bias or chance. While controlled trials may not be possible, comparative studies are needed to understand this association and whether the effects of GnRH analogues on bone density are seen after they are stopped. All the studies that reported safety outcomes provided very low certainty evidence.

No cost-effectiveness evidence was found to determine whether or not GnRH analogues are cost-effective for children and adolescents with gender dysphoria.

The results of the studies that reported outcomes for subgroups of children and adolescents with gender dysphoria, suggest there may be differences between sex assigned at birth males (transfemales) and sex assigned at birth females (transmales).

3. Methodology

Review questions

The review question(s) for this evidence review are:

1. For children and adolescents with gender dysphoria, what is the clinical effectiveness of treatment with GnRH analogues compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention?
2. For children and adolescents with gender dysphoria, what is the short-term and long-term safety of GnRH analogues compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention?
3. For children and adolescents with gender dysphoria, what is the cost-effectiveness of GnRH analogues compared to one or a combination of psychological support, social transitioning to the desired gender or no intervention?
4. From the evidence selected, are there any subgroups of children and adolescents with gender dysphoria that may derive more (or less) advantage from treatment with GnRH analogues than the wider population of children and adolescents with gender dysphoria?
5. From the evidence selected,
   a) what are the criteria used by the research studies to define gender dysphoria, gender identity disorder and gender incongruence of childhood?
   b) what were the ages at which participants commenced treatment with GnRH analogues?
   c) what was the duration of treatment with GnRH analogues?

See appendix A for the full review protocol.

Review process

The methodology to undertake this review is specified by NHS England in their 'Guidance on conducting evidence reviews for Specialised Services Commissioning Products' (2020).

The searches for evidence were informed by the PICO document and were conducted on 23 July 2020.

See appendix B for details of the search strategy.

Results from the literature searches were screened using their titles and abstracts for relevance against the criteria in the PICO framework. Full text references of potentially

relevant evidence were obtained and reviewed to determine whether they met the inclusion criteria for this evidence review.

See appendix C for evidence selection details and appendix D for the list of studies excluded from the review and the reasons for their exclusion.

Relevant details and outcomes were extracted from the included studies and were critically appraised using a checklist appropriate to the study design. See appendices E and F for individual study and checklist details.

The available evidence was assessed by outcome for certainty using modified GRADE. See appendix G for GRADE Profiles.

4. Summary of included studies

Nine observational studies were identified for inclusion. Five studies were retrospective observational studies (Brik et al. 2020, Joseph et al. 2019, Khatchadourian et al. 2014, Klink et al. 2015, Vlot et al. 2017), 3 studies were prospective longitudinal observational studies (Costa et al. 2015, de Vries et al. 2011, Schagen et al. 2016) and 1 study was a cross-sectional study (Staphorsius et al. 2015).

The terminology used in this topic area is continually evolving and is different depending on stakeholder perspectives. In this evidence review we have used the phrase 'people's assigned sex at birth' rather than natal or biological sex, gonadotrophin releasing hormone (GnRH) analogues rather than 'puberty blockers' and gender-affirming hormones rather than 'cross sex hormones'. The research studies included in this evidence review may use historical terms which are no longer considered appropriate.

Table 1 provides a summary of these included studies and full details are given in appendix E.

Table 1 Summary of included studies

Study	Population	Intervention and comparison	Outcomes reported
Brik et al. 2020 Retrospective observational single-centre study Netherlands	The study was conducted at the Curium-Leiden University Medical Centre gender clinic in Leiden, the Netherlands and involved adolescents with gender dysphoria. The sample size was 143 adolescents (median age at start of treatment was 15.0 years, range 11.1 to 18.6 years in transfemales; 16.1 years, range 10.1 to 17.9 years in transmales) from a sampling frame of 269 children and adolescents registered at the clinic between November 2010 and January 2018.	**Intervention** 143 children and adolescents receiving GnRH analogues (no specific treatment, dose, route or frequency of administration reported). The median duration was 2.1 years (range 1.6–2.8 years). **Comparison** No comparator.	**Critical Outcomes** • No critical outcomes reported **Important outcomes** • Stopping treatment

Study	Population	Intervention and comparison	Outcomes reported
	Participants were included in the study if they were diagnosed with gender dysphoria according to the DSM-5 criteria, registered at the clinic, were prepubertal and within the appropriate age range, and had started GnRH analogues. No concomitant treatments were reported.		
Costa et al. 2015 Prospective longitudinal observational single centre cohort study United Kingdom	The study was conducted at the Gender Identity Development Service in London and involved adolescents with gender dysphoria. The sample size was 201 adolescents (mean [±SD] age 15.52±1.41 years, range 12 to 17 years) from a sampling frame of 436 consecutive adolescents referred to the service between 2010 and 2014. The mean [±SD] age at the start of GnRH analogues was 16.48 [±1.26] years, range 13 to 17 years. Participants were invited to participate following a 6-month diagnostic process using DSM-IV-TR criteria. No concomitant treatments were reported.	**Intervention** 101 adolescents assessed as being immediately eligible for GnRH analogues (no specific treatment, dose or route of administration reported) plus psychological support. The average duration of treatment was approximately 12 months (no exact figure given). **Comparison** 100 adolescents assessed as not immediately eligible for GnRH analogues (more time needed to make the decision to start GnRH analogues) who had psychological support only. None received GnRH analogues throughout the study.	**Critical Outcomes** • No critical outcomes reported **Important outcomes** • Psychosocial impact
de Vries et al. 2011 Prospective longitudinal observational single centre before and after study Netherlands	The study was conducted at the Amsterdam gender identity clinic of the VU University Medical Centre and involved adolescents who were defined as “transsexual”. The sample size was 70 adolescents receiving GnRH analogues (mean age [±SD] at assessment 13.6±1.8 years) from a sampling frame of 196 consecutive adolescents referred to the service between 2000 and 2008. Participants were invited to participate if they subsequently started gender-affirming hormones between 2003 and 2009. No diagnostic criteria or concomitant treatments were reported.	**Intervention** 70 individuals assessed at baseline (T0) before the start of GnRH analogues (no specific treatment, dose or route of administration reported). **Comparison** No comparator.	**Critical Outcomes** • Gender dysphoria • Mental health (depression, anger and anxiety) **Important outcomes** • Body image • Psychosocial impact

Study	Population	Intervention and comparison	Outcomes reported
Joseph et al. 2019 Retrospective longitudinal observational single centre study United Kingdom	This study was conducted at the Early intervention clinic at University College London Hospital (all participants had been seen at the Gender Identity Development Service in London) and involved adolescents with gender dysphoria. The sample size was 70 adolescents with gender dysphoria (no diagnostic criteria described) all offered GnRH analogues. The mean age at the start of treatment was 13.2 years (SD ±1.4) for transfemales and 12.6 years (SD ±1.0) for transmales. Details of the sampling frame were not reported. Further details of how the sample was drawn are not reported. No concomitant treatments were reported.	**Intervention** GnRH analogues. No specific treatment, duration, dose or route of administration reported. **Comparison** No comparator.	**Critical Outcomes** • No critical outcomes reported **Important outcomes** • Safety: bone density
Khatchadourian et al. 2014 Retrospective observational chart review single centre study Canada	This study was conducted at the Endocrinology and Diabetes Unit at British Columbia Children's Hospital, Canada and involved youths with gender dysphoria. The sample size was 27 young people with gender dysphoria who started GnRH analogues (at mean age 14.7 [SD ±1.9] years) out of 84 young people seen at the unit between 1998 and 2011. Diagnostic criteria and concomitant treatments were not reported.	**Intervention** 84 young people with gender dysphoria. For GnRH analogues no specific treatment, duration, dose or route of administration reported. **Comparison** No comparator.	**Critical Outcomes** • No critical outcomes reported **Important outcomes** • Stopping treatment • Safety: adverse effects
Klink et al. 2015 Retrospective longitudinal observational single centre study Netherlands	This study was conducted in the Netherlands at a tertiary referral centre. It is unclear which centre this was. The sample size was 34 adolescents (mean age 14.9 [SD ±1.9] years for transfemales and 15.0 [SD ±2.0] years for transmales at start of GnRH analogues). Details of the sampling frame are not reported. Participants were included if they met DSM-IV-TR criteria for gender identity disorder of adolescence and had been treated with GnRH analogues and gender-affirming hormones during their pubertal years. No concomitant treatments were reported.	**Intervention** The intervention was GnRH analogue monotherapy (triptorelin 3.75 mg subcutaneously every 4 weeks) followed by gender-affirming hormones with discontinuation of GnRH analogues after gonadectomy. Duration of GnRH analogues was 1.3 years (range 0.5 to 3.8 years) in transfemales and 1.5 years (0.25 to 5.2 years in transmales. **Comparison** No comparator.	**Critical Outcomes** • No critical outcomes reported **Important outcomes** • Safety: bone density

Study	Population	Intervention and comparison	Outcomes reported
Schagen et al. 2016 Prospective longitudinal study Netherlands	This study was conducted at the Centre of Expertise on Gender Dysphoria at the VU University Medical Centre (Amsterdam, Netherlands) and involved adolescents with gender dysphoria. The sample size was 116 adolescents (median age [range] 13.6 years [11.6 to 17.9] in transfemales and 14.2 years [11.1 to 18.6] in transmales during first year of GnRH analogues) out of 128 adolescents who started GnRH analogues. Participants were included if they met DSM-IV-TR criteria for gender dysphoria, had lifelong extreme gender dysphoria, were psychologically stable and were living in a supportive environment. No concomitant treatments were reported.	**Intervention** The intervention was GnRH analogue monotherapy (triptorelin 3.75 mg at 0, 2 and 4 weeks followed by intramuscular injections every 4 weeks, for at least 3 months). **Comparison** No comparator.	**Critical Outcomes** • No critical outcomes reported **Important outcomes** • Safety: liver and renal function.
Staphorsius et al. 2015 Cross-sectional (single time point) assessment single centre study Netherlands	This study was conducted at the VU University Medical Centre (Amsterdam, Netherlands) and involved adolescents with gender dysphoria. The sample size was 85, of whom 40 were adolescents with gender dysphoria (20 of whom were being treated with GnRH analogues) and 45 were controls without gender dysphoria (not further reported here). Mean (±SD) age 15.1 (±2.4) years in transfemales and 15.8 (±1.9) years in transmales. Details of the sampling frame are not reported. Participants were included if they were diagnosed with Gender Identity Disorder according to the DSM-IV-TR and at least 12 years old and Tanner stage of at least B2 or G2 to G3 with measurable oestradiol and testosterone levels in girls and boys, respectively. No concomitant treatments were reported.	**Intervention** The intervention was a GnRH analogue (triptorelin 3.75 mg every 4 weeks subcutaneously or intramuscularly). The mean duration of treatment was 1.6 years (SD ±1.0). **Comparison** Adolescents with gender dysphoria not treated with GnRH analogues.	**Critical Outcomes** • No critical outcomes reported **Important outcomes** • Psychosocial impact • Safety: cognitive functioning
Vlot et al. 2017 Retrospective observational data analysis study	This study was conducted at the VU University Medical Centre (Amsterdam, Netherlands) and involved adolescents with gender dysphoria. The sample size was 70 adolescents (median age [range] 15.1 years [11.7 to 18.6] for	**Intervention** The intervention was a GnRH analogue (triptorelin 3.75 mg every 4 weeks subcutaneously). **Comparison** No comparator.	**Critical Outcomes** • No critical outcomes reported **Important outcomes**

Study	Population	Intervention and comparison	Outcomes reported
Netherlands	transmales and 13.5 years [11.5 to 18.3] for transfemales at start of GnRH analogues). Details of the sampling frame are not reported. Participants were included if they had a diagnosis of gender dysphoria according to DSM-IV-TR criteria who were receiving GnRH analogues and then gender-affirming hormones. No concomitant treatments were reported.		• Safety: bone density
Abbreviations: DSM-IV-TR, Diagnostic and Statistical Manual of Mental Disorders, fourth edition, text revision; GnRH, Gonadotrophin releasing hormone; SD, Standard deviation.			

5. Results

In children and adolescents with gender dysphoria, what is the clinical effectiveness of treatment with GnRH analogues compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention?

Outcome	Evidence statement
Clinical Effectiveness	
Critical outcomes	
Impact on gender dysphoria **Certainty of evidence: very low**	This is a critical outcome because gender dysphoria in children and adolescents is associated with significant distress and problems with functioning. One uncontrolled, prospective observational longitudinal study (de Vries et al. 2011) provided evidence relating to the impact on gender dysphoria in adolescents, measured using the Utrecht Gender Dysphoria Scale (UGDS). The UGDS is a validated screening tool for both adolescents and adults to assess gender dysphoria. It consists of 12 items, to be answered on a 1- to 5-point scale, resulting in a sum score between 12 and 60. The higher the UGDS score the greater the gender dysphoria. The study measured the impact on gender dysphoria at 2 time points: • before starting a GnRH analogue (mean [±SD] age: 14.75 [±1.92] years), and • shortly before starting gender-affirming hormones (mean [±SD] age: 16.64 [±1.90] years). The mean (±SD) UGDS score was not statistically significantly different at baseline compared with follow-up (n=41, 53.20 [±7.91] versus 53.9 [±17.42], p=0.333) **(VERY LOW)**.

	This study provides very low certainty evidence that treatment with GnRH analogues, before starting gender-affirming hormones, does not affect gender dysphoria.
Impact on mental health: depression **Certainty of evidence: very low**	This is a critical outcome because self-harm and thoughts of suicide have the potential to result in significant physical harm and, for completed suicides, the death of the young person. One uncontrolled, prospective observational longitudinal study (de Vries et al. 2011) provided evidence relating to the impact on depression in children and adolescents with gender dysphoria. Depression was measured using the Beck Depression Inventory-II (BDI-II). The BDI-II is a valid, reliable, and widely used tool for assessing depressive symptoms. There are no specific scores to categorise depression severity, but it is suggested that 0 to 13 is minimal symptoms, 14 to 19 is mild depression, 20 to 28 is moderate depression, and severe depression is 29 to 63. The study provided evidence for depression measured at 2 time points: • before starting a GnRH analogue (mean [±SD] age: 14.75 [±1.92] years), and • shortly before starting gender-affirming hormones (mean [±SD] age: 16.64 [±1.90] years). The mean (±SD) depression (BDI) score was statistically significantly lower (improved) from baseline compared with follow-up (n=41, 8.31 [±7.12] versus 4.95 [±6.72], p=0.004) **(VERY LOW)**. **This study provides very low certainty evidence that treatment with GnRH analogues, before starting gender-affirming hormones, may reduce depression.**
Impact on mental health: anger **Certainty of evidence: very low**	This is a critical outcome because self-harm and thoughts of suicide have the potential to result in significant physical harm and, for completed suicides, the death of the young person. One uncontrolled, prospective observational longitudinal study (de Vries et al. 2011) provided evidence relating to the impact on anger in children and adolescents with gender dysphoria. Anger was measured using the Trait Anger Scale of the State-Trait Personality Inventory (TPI). This is a validated 20-item inventory tool which measures the intensity of anger as the disposition to experience angry feelings as a personality trait. Higher scores indicate greater anger. The study provided evidence for anger measured at 2 time points: • before starting a GnRH analogue (mean [±SD] age: 14.75 [±1.92] years), and • shortly before starting gender-affirming hormones (mean [±SD] age: 16.64 [±1.90] years). The mean (±SD) anger (TPI) score was not statistically significantly different at baseline compared with follow-up (n=41, 18.29 [±5.54] versus 17.88 [±5.24], p=0.503) **(VERY LOW)**. **This study provides very low certainty evidence that treatment with GnRH analogues, before starting gender-affirming hormones, does not affect anger.**

Impact on mental health: anxiety **Certainty of evidence: very low**	This is a critical outcome because self-harm and thoughts of suicide have the potential to result in significant physical harm and, for completed suicides, the death of the young person. One uncontrolled, prospective observational longitudinal study (de Vries et al. 2011) provided evidence relating to the impact on anxiety in children and adolescents with gender dysphoria. Anxiety was measured using the Trait Anxiety Scale of the State-Trait Personality Inventory (STAI). This is a validated and commonly used measure of trait and state anxiety. It has 20 items and can be used in clinical settings to diagnose anxiety and to distinguish it from depressive illness. Higher scores indicate greater anxiety. The study provided evidence for anxiety at 2 time points: • before starting a GnRH analogue (mean [±SD] age: 14.75 [±1.92] years), and • shortly before starting gender-affirming hormones (mean [±SD] age: 16.64 [±1.90] years). The mean (±SD) anxiety (STAI) score was not statistically significantly different at baseline compared with follow-up (n=41, 39.43 [±10.07] versus 37.95 [±9.38], p=0.276) (**VERY LOW)**. **This study provides very low certainty evidence that treatment with GnRH analogues, before starting gender-affirming hormones, does not affect levels of anxiety.**
Quality of life	This is a critical outcome because gender dysphoria in children and adolescents may be associated with a significant reduction in health-related quality of life. No evidence was identified.
Important outcomes	
Impact on body image **Certainty of evidence: very low**	This is an important outcome because some children and adolescents with gender dysphoria may want to take steps to suppress features of their physical appearance associated with their sex assigned at birth or accentuate physical features of their desired gender. One uncontrolled, prospective observational longitudinal study provided evidence relating to the impact on body image (de Vries et al. 2011). Body image was measured using the Body Image Scale (BIS) which is a validated 30-item scale covering 3 aspects: primary, secondary and neutral body characteristics. Higher scores represent a higher degree of body dissatisfaction. The study (de Vries et al. 2011) provided evidence for body image measured at 2 time points: • before starting a GnRH analogue (mean [±SD] age: 14.75 [±1.92] years), and • shortly before starting gender-affirming hormones (mean [±SD] age: 16.64 [±1.90] years). The mean (±SD) body image (BIS) scores for were not statistically significantly different from baseline compared with follow-up for:

	• primary sexual characteristics (n=57, 4.10 [±0.56] versus 3.98 [±0.71], p=0.145) • secondary sexual characteristics (n=57, 2.74 [±0.65] versus 2.82 [±0.68], p=0.569) • neutral body characteristics (n=57, 2.41 [±0.63] versus 2.47 [±0.56], p=0.620) **(VERY LOW)**. **This study provides very low certainty evidence that treatment with GnRH analogues, before starting gender affirming hormones, does not affect body image.**
Psychosocial impact: global functioning **Certainty of evidence: very low**	This is an important outcome because gender dysphoria in children and adolescents is associated with internalising and externalising behaviours, and emotional and behavioural problems which may impact on social and occupational functioning. One uncontrolled, observational, prospective cohort study (de Vries et al 2011) and one prospective cross-sectional cohort study (Costa et al. 2015) provided evidence relating to psychosocial impact in terms of global functioning. Global functioning was measured using the Children's Global Assessment Scale (CGAS). The CGAS tool is a validated measure of global functioning on a single rating scale from 1 to 100. Lower scores indicate poorer functioning. One study (de Vries et al. 2011) provided evidence for global functioning (CGAS) at 2 time points: • before starting a GnRH analogue (mean [±SD] age: 14.75 [±1.92] years), and • shortly before starting gender-affirming hormones (mean [±SD] age: 16.64 [±1.90] years). The mean (±SD) CGAS score was statistically significantly higher (improved) from baseline compared with follow-up (n=41, 70.24 [±10.12] versus 73.90 [±9.63], p=0.005) **(VERY LOW)**. One study (Costa et al. 2015) in adolescents with gender dysphoria who had 6 months of psychological support followed by either GnRH analogues and continued psychological support (the immediately eligible group) or continued psychological support only (the delayed eligible group who did not receive GnRH analogues) provided evidence for global functioning (CGAS) measured at 4 time points: • at baseline (T0) in both groups, • after 6 months of psychological support in both groups (T1), • after 6 months of GnRH analogues and 12 months of psychological support in the immediately eligible group and 12 months of psychological support only in the delayed eligible group (T2), and • after 18 months of psychological support and 12 months of GnRH analogues in the immediately eligible group and after 18 months of psychological support only in the delayed eligible group (T3). The mean [±SD] CGAS score was statistically significantly higher (improved) for all adolescents (including those not receiving GnRH analogues) at T1, T2 or T3 compared with baseline (T0).

	For the immediately eligible group (who received GnRH analogues) versus the delayed eligible group (who did not receive GnRH analogues) there were no statistically significant differences in CGAS scores between the 2 groups at baseline T0 (n=201, p=0.23), T1 (n=201, p=0.73), T2 (n=121, p=0.49) or T3 (n=71, p=0.14) time points. For the immediately eligible group (who received GnRH analogues), the mean (±SD) CGAS score was not statistically significantly different at: • T1 compared with T0 • T2 compared with T1 • T3 compared with T2. The mean (±SD) CGAS score was statistically significantly higher (improved) at: • T2 compared with T0 (n=60, 64.70 [±13.34] versus n=101, 58.72 [±11.38], p=0.003) • T3 compared with T0 (n=35, 67.40 [±13.39] versus n=101, 58.72 [±11.38], p<0.001) • T3 compared with T1 (n=35, 67.40 [±13.93] versus n=101, 60.89 [±12.17], p<0.001) **(VERY LOW)**. **These studies provide very low certainty evidence that during treatment with GnRH analogues, global functioning may improve over time. However, there was no statistically significant difference in global functioning between GnRH analogues plus psychological support compared with psychological support only at any time point.**
Psychosocial impact: psychosocial functioning **Certainty of evidence: very low**	This is an important outcome because gender dysphoria in children and adolescents is associated with internalising and externalising behaviours, and emotional and behavioural problems which may impact on social and occupational functioning. Two studies provided evidence for this outcome. One uncontrolled, observational, prospective cohort study (de Vries et al, 2011) and 1 cross-sectional observational study (Staphorsius et al. 2015) assessed psychosocial functioning using the Child Behaviour Checklist (CBCL) and the self-administered Youth Self-Report (YSR). The CBCL is a checklist parents complete to detect emotional and behavioural problems in children and adolescents. YSR is similar but is self-completed by the child or adolescent. The scales consist of a Total problems score, which is the sum of the scores of all the problem items. An internalising problem scale sums the anxious/depressed, withdrawn-depressed, and somatic complaints scores while the externalising problem scale combines rule-breaking and aggressive behaviour. The standard scores are scaled so that 50 is average for the child or adolescent's age and gender, with a SD of 10 points. Higher scores indicate greater problems, with a T-score above 63 considered to be in the clinical range. One study (de Vries et al. 2011) provided evidence for psychosocial functioning (CBCL and YSR scores) at 2 time points: • before starting a GnRH analogue (mean [±SD] age: 14.75 [±1.92] years), and

	• shortly before starting gender-affirming hormones (mean [±SD] age: 16.64 [±1.90] years). At follow up, the mean (±SD) CBCL scores were statistically significantly lower (improved) compared with baseline for: • Total T score (n=54, 60.70 [±12.76] versus 54.46 [±11.23], p<0.001 • Internalising T score (n=54, 61.00 [±12.21] versus 52.17 [±9.81], p<0.001) • Externalising T score (n=54, 58.04 [±12.99] versus 53.81 [±11.86], p=0.001). At follow up, the mean (±SD) YSR scores were statistically significantly lower (improved) compared with baseline for: • Total T score (n=54, 55.46 [±11.56] versus 50.00 [±10.56], p<0.001) • Internalising T score (n=54, 56.04 [±12.49] versus 49.78 [±11.63], p<0.001) • Externalising T score (n=54, 53.30 [±11.87] versus 49.98 [±9.35], p=0.009). The proportion of adolescents scoring in the clinical range decreased from baseline to follow up on the CBCL total problem scale (44.4% versus 22.2%, p=0.001) and the internalising scale of the YSR (29.6% versus 11.1%, p=0.017) **(VERY LOW)**. One study (Staphorsius et al. 2015) assessed CBCL in a cohort of adolescents with gender dysphoria (transfemale: n=18, mean [±SD] age 15.1 [±2.4] years and transmale: n=22, mean [±SD] age 15.8 [±1.9] years) either receiving GnRH analogues (transfemale, n=8 and transmale, n=12), or not receiving GnRH analogues (transfemale, n=10 and transmale, n=10). The mean (±SD) CBCL scores for each group were (statistical analysis unclear): • transfemales (total) 57.8 [±9.2] • transfemales receiving GnRH analogues 57.4 [±9.8] • transfemales not receiving GnRH analogues 58.2 [±9.3] • transmales (total) 60.4 [±10.2] • transmales receiving GnRH analogues 57.5 [±9.4] • transmales not receiving GnRH analogues 63.9 [±10.5] **(VERY LOW)**. **These studies provide very low certainty evidence that during treatment with GnRH analogues psychosocial functioning may improve, with the proportion of adolescents in the clinical range for some CBCL and YSR scores decreasing over time.**
Engagement with health care services **Certainty of evidence: very low**	This is an important outcome because patient engagement with health care services will impact on their clinical outcomes. Two uncontrolled observational cohort studies provided evidence relating to loss to follow up, which could be a marker of engagement with health care services (Brik et al. 2018 and Costa et al. 2015).

	In one retrospective study (Brik et al. 2018), 9 adolescents (9/214, 4.2%) who had stopped attending appointments were excluded from the study between November 2010 and July 2019 **(VERY LOW)**. One prospective study (Costa et al. 2015) had evidence for a large loss to follow-up over time. The sample size at baseline (T0) and 6 months (T1) was 201, which dropped by 39.8% to 121 after 12 months (T2) and by 64.7% to 71 at 18 months follow-up (T3). No explanation of the reasons for loss to follow-up are reported **(VERY LOW)**. Due to their design there was no reported loss to follow-up in the other 3 effectiveness studies (de Vries et al 2011; Khatchadourian et al. 2014; Staphorsius et al. 2015). **These studies provide very low certainty evidence about loss to follow up, which could be a marker of engagement with health care services, during treatment with GnRH analogues. Due to the large variation in rates between studies no conclusions could be drawn.**
Impact on extent of and satisfaction with surgery	This is an important outcome because some children and adolescents with gender dysphoria may proceed to transitioning surgery. No evidence was identified.

Stopping treatment
 	
Certainty of evidence: very low
	This is an important outcome because there is uncertainty about the short- and long-term safety and adverse effects of GnRH analogues in children and adolescents with gender dysphoria.
	
	Two uncontrolled, retrospective, observational cohort studies provided evidence relating to stopping GnRH analogues. One study had complete reporting of the cohort (Brik et al. 2018), the other (Khatchadourian et al. 2014) had incomplete reporting of its cohort, particularly for transfemales where outcomes for only 4/11 were reported.
	
	Brik et al. 2018 narratively reported the reasons for stopping GnRH analogues in a cohort of 143 adolescents (38 transfemales and 105 transmales). Median age at the start of GnRH analogues was 15.0 years (range, 11.1–18.6 years) in transfemales and 16.1 years (range, 10.1–17.9 years) in transmales. Of these adolescents, 125 (87%, 36 transfemales, 89 transmales) subsequently started gender-affirming hormones after 1.0 (0.5–3.8) and 0.8 (0.3–3.7) years of GnRH analogues. At the time of data collection, the median duration of GnRH analogue use was 2.1 years (1.6–2.8).
	
	During the follow-up period 6.3% (9/143) of adolescents had discontinued GnRH analogues after a median duration of 0.8 years (range 0.1 to 3.0). The percentages and reasons for stopping were:
	• 2.8% (4/143) stopped GnRH analogues although they wanted to continue endocrine treatments for gender dysphoria:
	  ○ 1 transmale stopped due to increase in mood problems, suicidal thoughts and confusion attributed to GnRH analogues
	  ○ 1 transmale had hot flushes, increased migraines, fear of injections, stress at school and unrelated medical issues, and temporarily stopped treatment (after 4 months) and restarted 5 months later.

	○ 1 transmale had mood swings 4 months after starting GnRH analogues. After 2.2 years had unexplained severe nausea and rapid weight loss and discontinued GnRH analogues after 2.4 years ○ 1 transmale stopped GnRH analogues because of inability to regularly collect medication and attend appointments for injections. • 3.5% (5/143) stopped treatment because they no longer wished to receive gender-affirming treatment for various reasons **(VERY LOW)**. Khatchadourian et al. 2014 narratively reported the reasons for stopping GnRH analogues in a cohort of 26 adolescents (15 transmales and 11 transfemales), 42% (11/26) discontinued GnRH analogues during follow-up between 1998 and 2011. Of 15 transmales receiving GnRH analogues, 14 received testosterone during the observation period, of which: • 7 continued GnRH analogues after starting testosterone • 7 stopped GnRH analogues after a median of 3.0 years (range 0.2 to 9.2 years), of which: ○ 5 stopped after hysterectomy and salpingo-oophorectomy ○ 1 stopped after 2.2 years (transitioned to gender-affirming hormones) ○ 1 stopped after <2 months due to mood and emotional lability **(VERY LOW)**. Of 11 transfemales receiving GnRH analogues, 5 received oestrogen during the observation period, of which: • 4 continued GnRH analogues after starting oestrogen • 1 stopped GnRH analogues when taking oestrogen (no reason reported) **(VERY LOW)**. Of the remaining 6 transfemales taking GnRH analogues: • 1 stopped GnRH analogues after a few months due to emotional lability • 1 stopped GnRH analogues before taking oestrogen (the following year delayed due to heavy smoking) • 1 stopped GnRH analogues after 13 months due not to pursuing transition **(VERY LOW)**. **These studies provide very low certainty evidence for the number of adolescents who stop GnRH analogues and the reasons for this.**

Abbreviations: GnRH, gonadotrophin releasing hormone; SD, standard deviation.

In children and adolescents with gender dysphoria, what is the short-term and long-term safety of GnRH analogues compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention?

Outcome	Evidence statement

Safety	
Change in bone density: lumbar **Certainty of evidence: very low**	This is an important outcome because puberty is an important time for bone development and puberty suppression may affect bone development, as shown by changes in lumbar bone density. Three uncontrolled, observational, retrospective studies provided evidence relating to the effect of GnRH analogues on bone density (based on lumbar BMAD) between starting with a GnRH analogue and at 1 and 2 year intervals (Joseph et al. 2019), and between starting GnRH analogues and starting gender-affirming hormones (Klink et al. 2015 and Vlot et al. 2017). All outcomes were reported separately for transfemales and transmales; also see subgroups table below. BMAD is a size adjusted value of BMD incorporating body size measurements using UK norms in growing adolescents. It was reported as g/cm^3 and as z-scores. Z-scores report how many standard deviations from the mean a measurement sits. A z-score of 0 is equal to the mean, a z-score of −1 is equal to 1 standard deviation below the mean, and a z-score of +1 is equal to 1 standard deviation above the mean. One retrospective observational study (Joseph et al. 2019, n=70) provided non-comparative evidence on change in lumbar BMAD increase using z-scores. • The z-score for lumbar BMAD was statistically significantly lower at 2 years compared with baseline in transfemales (z-score [±SD]: baseline 0.486 [0.809], 2 years −0.279 [0.930], p=0.000) and transmales (baseline −0.361 [1.439], 2 years −0.913 [1.318], p=0.001) **(VERY LOW)**. • The z-score for lumbar BMAD was statistically significantly lower at 1 year compared with baseline in transfemales (baseline 0.859 [0.154], 1 year −0.228 [1.027], p=0.000) and transmales (baseline −0.186 [1.230], 1 year −0.541 [1.396], p=0.006) **(VERY LOW)**. • Actual lumbar BMAD values in g/cm^3 were not statistically significantly different between baseline and 1 or 2 years in transfemales or transmales **(VERY LOW)**. Two retrospective observational studies (Klink et al. 2015 and Vlot et al. 2017, n=104 in total) provided non-comparative evidence on change in lumbar BMAD between starting GnRH analogues and starting gender-affirming hormones. All outcomes were reported separately for transfemales and transmales; also see subgroups table below. In Klink et al. 2015 the z-score for lumbar BMAD was not statistically significantly different between starting GnRH analogues and starting gender-affirming hormones in transfemales but was statistically significantly lower when starting gender-affirming hormones in transmales (z-score mean [±SD]: GnRH analogue 0.28 [±0.90], gender-affirming hormone −0.50 [±0.81], p=0.004). Actual lumbar BMAD values in g/cm^3 were not statistically significantly different between starting GnRH analogues and starting gender-affirming hormones in transfemales or transmales **(VERY LOW)**.

	Vlot et al. 2017 reported change from starting GnRH analogues to starting gender-affirming hormones in lumbar BMAD by bone age. • The z-score for lumbar BMAD in transfemales with a bone age of <15 years was statistically significantly lower at starting gender-affirming hormone treatment than at starting GnRH analogues (z-score median [range]: GnRH analogue −0.20 [−1.82 to 1.18], gender-affirming hormone −1.52 [−2.36 to 0.42], p=0.001) but was not statistically significantly different in transfemales with a bone age ≥15 years **(VERY LOW)**. • The z-score for lumbar BMAD in transmales with a bone age of <14 years was statistically significantly lower at starting gender-affirming hormone treatment than at starting GnRH analogues (z-score median [range]: GnRH analogue −0.05 [−0.78 to 2.94], gender-affirming hormone −0.84 [−2.20 to 0.87], p=0.003) and in transmales with a bone age ≥14 years (GnRH analogue 0.27 [−1.60 to 1.80], gender-affirming hormone −0.29 [−2.28 to 0.90], p≤0.0001) **(VERY LOW)**. • Actual lumbar BMAD values in g/cm^3 were not statistically significantly different between starting GnRH analogues and starting gender-affirming hormones in transfemales or transmales with young or old bone age **(VERY LOW)**. Two uncontrolled, observational, retrospective studies provided evidence for the effect of GnRH analogues on bone density (based on lumbar BMD) between starting GnRH analogues and either at 1 or 2 year intervals (Joseph et al. 2019), or starting gender-affirming hormones (Klink et al. 2015). All outcomes were reported separately for transfemales and transmales; also see subgroups table below. One retrospective observational study (Joseph et al. 2019, n=70) provided non-comparative evidence on change in lumbar BMD increase using z-scores. • The z-score for lumbar BMD was statistically significantly lower at 2 years compared with baseline in transfemales (z-score mean [±SD]: baseline 0.130 [0.972], 2 years −0.890 [±1.075], p=0.000) and transmales (baseline −0.715 [±1.406], 2 years −2.000 [1.384], p=0.000) **(VERY LOW)**. • The z-score for lumbar BMD was statistically significantly lower at 1 year compared with baseline in transfemales (z-score mean [±SD]: baseline −0.016 [±1.106], 1 year −0.461 [±1.121], p=0.003) and transmales (baseline −0.395 [±1.428], 1 year −1.276 [±1.410], p=0.000) **(VERY LOW)**. • With the exception of transmales, where lumbar BMD in kg/m^2 increased between baseline and 1 year (mean [±SD]: baseline 0.694 [±0.149], 1 year 0.718 [±0.124], p=0.006), actual lumbar BMD values were not statistically significantly different between baseline and 1 or 2 years in transfemales or between 0 and 2 years in transmales **(VERY LOW)**. One retrospective observational study (Klink et al. 2015, n=34) provided non-comparative evidence on change in lumbar BMD between starting GnRH analogues and starting gender-affirming hormones. • The z-score for lumbar BMD was not statistically significantly different between starting GnRH analogue and starting gender-affirming hormone treatment in transfemales, but was

	statistically significantly lower when starting gender-affirming hormones in transmales (z-score mean [±SD]: GnRH analogue 0.17 [±1.18], gender-affirming hormone −0.72 [±0.99], p<0.001) **(VERY LOW)**. • Actual lumbar BMD in g/cm^2 was not statistically significantly different between starting GnRH analogues and starting gender-affirming hormones in transfemales but was statistically significantly lower when starting gender-affirming hormones in transmales (mean [±SD]: GnRH analogues 0.95 [±0.12], gender-affirming hormones 0.91 [±0.10], p=0.006) **(VERY LOW)**. **These studies provide very low certainty evidence that GnRH analogues reduce the expected increase in lumbar bone density (BMAD or BMD) compared with baseline (although some findings were not statistically significant). These studies also show that GnRH analogues do not statistically significantly decrease actual lumbar bone density (BMAD or BMD).**
Change in bone density: femoral **Certainty of evidence: very low**	This is an important outcome because puberty is an important time for bone development and puberty suppression may affect bone development, as shown by changes in femoral bone density. Two uncontrolled, observational, retrospective studies provided evidence relating to the effect of GnRH analogues on bone density (based on femoral BMAD) between starting treatment with a GnRH analogue and starting gender-affirming hormones (Klink et al. 2015 and Vlot et al. 2017). All outcomes were reported separately for transfemales and transmales; also see subgroups table below. One retrospective observational study (Klink et al. 2015, n=34) provided non-comparative evidence on change in femoral area BMAD between starting GnRH analogues and starting gender-affirming hormones. All outcomes were reported separately for transfemales and transmales. • The z-score for femoral area BMAD was not statistically significantly different between starting GnRH analogues and starting gender-affirming hormones in transfemales or transmales **(VERY LOW)**. • Actual femoral area BMAD values were not statistically significantly different between starting GnRH analogues and starting gender-affirming hormones in transmales or transfemales **(VERY LOW)**. One retrospective observational study (Vlot et al. 2017, n=70) provided non-comparative evidence on change in femoral neck (hip) BMAD between starting GnRH analogues and starting gender-affirming hormones. All outcomes were reported separately for transfemales and transmales; also see subgroups table below. • The z-score for femoral neck BMAD in transfemales with a bone age of <15 years was not statistically significantly lower at starting gender-affirming hormones than at starting GnRH analogues (z-score median [range]: GnRH analogue −0.71 [−3.35 to 0.37], gender-affirming hormone −1.32 [−3.39 to 0.21], p≤0.1) or in transfemales with a bone age ≥15 years (GnRH analogue −0.44 [−1.37 to 0.93], gender-affirming hormone −0.36 [−1.50 to 0.46]) **(VERY LOW)**.

	• The z-score for femoral neck BMAD in transmales with a bone age of <14 years was not statistically significantly lower at starting gender-affirming hormones than at starting GnRH analogues (z-score median [range]: GnRH analogue −0.01 [−1.30 to 0.91], gender-affirming hormone −0.37 [−2.28 to 0.47]) but was statistically significantly lower in transmales with a bone age ≥14 years (GnRH analogue 0.27 [−1.39 to 1.32], gender-affirming hormone −0.27 [−1.91 to 1.29], p=0.002) **(VERY LOW)**. • Actual femoral neck BMAD values were not statistically significantly different between starting GnRH analogues and starting gender-affirming hormones in transfemales or in transmales with a young bone age, but were statistically significantly lower in transmales with a bone age ≥14 years (GnRH analogue 0.33 [0.25 to 0.39), gender-affirming hormone 0.30 [0.23 to 0.41], p≤0.01) **(VERY LOW)**. Two uncontrolled, observational, retrospective studies provided evidence for the effect of GnRH analogues on bone density (based on femoral BMD) between starting GnRH analogues and either at 1 or 2 year intervals (Joseph et al. 2019), or starting gender-affirming hormones (Klink et al. 2015). All outcomes were reported separately for transfemales and transmales; also see subgroups table below. One retrospective observational study (Joseph et al. 2019, n=70) provided non-comparative evidence on change in femoral neck BMD increase using z-scores. All outcomes were reported separately for transfemales and transmales. • The z-score for femoral neck BMD was statistically significantly lower at 2 years compared with baseline in transfemales (z-score mean [±SD]: baseline 0.0450 [±0.781], 2 years −0.600 [±1.059], p=0.002) and transmales (baseline −1.075 [±1.145], 2 years −1.779 [±0.816], p=0.001) **(VERY LOW)**. • The z-score for femoral neck BMD was statistically significantly lower at 1 year compared with baseline in transfemales (z-score mean [±SD]: baseline 0.157 [±0.905], 1 year −0.340 [±0.816], p=0.002) and transmales (baseline −0.863 [±1.215], 1 year −1.440 [±1.075], p=0.000) **(VERY LOW)**. • Actual femoral neck BMD values in kg/m^2 were not statistically significantly different between baseline and 1 or 2 years in transmales or transfemales **(VERY LOW)**. One retrospective observational study (Klink et al. 2015, n=34) provided non-comparative evidence on change in femoral area BMD between starting GnRH analogues and starting gender-affirming hormones. All outcomes were reported separately for transfemales and transmales. • The z-score for femoral area BMD was not statistically significantly different between starting GnRH analogues and starting gender-affirming hormones in transfemales, but was statistically significantly lower in transmales (z-score mean [±SD]: GnRH analogue 0.36 [±0.88], gender-affirming hormone −0.35 [±0.79], p=0.001) **(VERY LOW)**. • Actual femoral area BMD values were not statistically significantly different between starting GnRH analogues and starting gender-affirming hormones in transfemales, but were

	statistically significantly lower in transmales (mean [±SD] GnRH analogue 0.92 [±0.10], gender-affirming hormone 0.88 [±0.09], p=0.005) **(VERY LOW)**. **These studies provide very low certainty evidence that GnRH analogues may reduce the expected increase in femoral bone density (femoral neck or area BMAD or BMD) compared with baseline (although some findings were not statistically significant). These studies also show that GnRH analogues do not statistically significantly decrease actual femoral bone density (femoral area BMAD or femoral neck BMD), apart from actual femoral area BMD in transmales.**
Cognitive development or functioning **Certainty of evidence: very low**	This is an important outcome because puberty is an important time for cognitive development and puberty suppression may affect cognitive development or functioning. One cross-sectional observational study (Staphorsius et al. 2015, n=70) provided comparative evidence on cognitive development or functioning in adolescents with gender dysphoria on GnRH analogues compared with adolescents with gender dysphoria not on GnRH analogues. Cognitive functioning was measured using an IQ test. Reaction time (in seconds) and accuracy (percentage of correct trials) were measured using the Tower of London (ToL) task. All outcomes were reported separately for transfemales and transmales; also see subgroups table below. No statistical analyses or interpretation of the results in these groups were reported: • IQ in transfemales (mean [±SD] GnRH analogue 94.0 [±10.3], control 109.4 [±21.2]). IQ transmales (GnRH analogue 95.8 [±15.6], control 98.5 [±15.9]. • Reaction time in transfemales (mean [±SD] GnRH analogue 10.9 [±4.1], control: 9.9 [±3.1]). Reaction time transmales (GnRH analogue 9.9 [±3.1], control 10.0 [±2.0]). • Accuracy score in transfemales (GnRH analogue 73.9 [±9.1], control 83.4 [±9.5]. Accuracy score in transmales (GnRH analogue 85.7 [±10.5], control 88.8 [±9.7]. **This study provides very low certainty evidence (with no statistical analysis) on the effects of GnRH analogues on cognitive development or functioning. No conclusions could be drawn.**
Other safety outcomes: kidney function **Certainty of evidence: very low**	This is an important outcome because if renal damage (raised serum creatinine is a marker of this) is suspected, GnRH analogues may need to be stopped. One prospective observational study (Schagen et al. 2016, n=116) provided non-comparative evidence on change in serum creatinine between starting GnRH analogues and at 1 year. All outcomes were reported separately for transfemales and transmales; also see subgroups table below. • There was no statistically significant difference between baseline and 1 year for serum creatinine in transfemales (mean [±SD] baseline 70 [±12], 1 year 66 [±13], p=0.20). • There was a statistically significant decrease between baseline and 1 year for serum creatinine in transmales (baseline 73 [±8], 1 year 68 [±13], p=0.01).

	This study provides very low certainty evidence that GnRH analogues do not affect renal function.
Other safety outcomes: liver function **Certainty of evidence: very low**	This is an important outcome because if treatment-induced liver injury (raised liver enzymes are a marker of this) is suspected, GnRH analogues may need to be stopped. One prospective observational study (Schagen et al. 2016, n=116) provided non-comparative evidence on elevated liver enzymes between starting GnRH analogues and during use. No comparative values or statistical analyses were reported. • Glutamyl transferase was not elevated at baseline or during use in any person. • Mild elevations of AST and ALT above the reference range were present at baseline but were not more prevalent during use than at baseline. • Glutamyl transferase, AST, and ALT levels did not significantly change from baseline to 12 months of use. **This study provides very low certainty evidence (with no statistical analysis) that GnRH analogues do not affect liver function.**
Other safety outcomes: adverse effects **Certainty of evidence: very low**	This is an important outcome because if there are adverse effects, GnRH analogues may need to be stopped. One uncontrolled, retrospective, observational cohort study (Khatchadourian et al. 2014) provided evidence relating to adverse effects from GnRH analogues. It had incomplete reporting of its cohort, particularly for transfemales where outcomes for only 4/11 were reported. Khatchadourian et al. 2014 reported adverse effects in a cohort of 26 adolescents (15 transmales and 11 transfemales) receiving GnRH analogues. Of these: • 1 transmale developed sterile abscesses; they were switched from leuprolide acetate to triptorelin, and this was well tolerated. • 1 transmale developed leg pains and headaches, which eventually resolved • 1 participant gained 19 kg within 9 months of starting GnRH analogues. **This study provides very low certainty evidence about potential adverse effects of GnRH analogues. No conclusions could be drawn.**

Abbreviations: ALT, alanine aminotransferase; AST, aspartate aminotransferase; BMAD, bone mineral apparent density; BMD, bone mineral density; GnRH, gonadotrophin releasing hormone; IQ, intelligence quotient; NS, not significant; SD, standard deviation.

In children and adolescents with gender dysphoria, what is the cost-effectiveness of GnRH analogues compared to one or a combination of psychological support, social transitioning to the desired gender or no intervention?

Outcome	Evidence statement

Cost-effectiveness	No studies were identified to assess the cost-effectiveness of GnRH analogues for children and adolescents with gender dysphoria.

From the evidence selected, are there any subgroups of children and adolescents with gender dysphoria that may benefit from GnRH analogues more than the wider population of interest?

Subgroup	Evidence statement
Sex assigned at birth males (transfemales) **Certainty of evidence: Very low**	Some studies reported data separately for sex assigned at birth males (transfemales). This included some direct comparisons with sex assigned at birth females (transmales). **Impact on gender dysphoria** One uncontrolled prospective observational longitudinal study (de Vries et al. 2011) provided evidence for gender dysphoria in sex assigned at birth males. See the clinical effectiveness results table above for a full description of the study. The mean (±SD) UGDS score was statistically significantly lower (improved) in sex assigned at birth males compared with sex assigned at birth females at both baseline (T0) (n=not reported, mean UGDS score [±SD]: 47.95 [±9.70] versus 56.57 [±3.89]) and T1 (n=not reported, 49.67 [±9.47] versus 56.62 [±4.00]); between sex difference p<0.001 **(VERY LOW)**. One further prospective observational longitudinal study (Costa et al. 2015) provided evidence for the impact on gender dysphoria in sex assigned at birth males. See the clinical effectiveness results table above for a full description of the study. Sex assigned at birth males had a statistically significantly lower (improved) mean (±SD) UGDS score of 51.6 [±9.7] compared with sex assigned at birth females (56.1 [±4.3], p<0.001). However, it was not reported if this was baseline or follow-up **(VERY LOW)**. **These studies provide very low certainty evidence that in sex assigned at birth males (transfemales), gender dysphoria is lower than in sex assigned at birth females (transmales).** **Impact on mental health** One uncontrolled prospective observational longitudinal study (de Vries et al. 2011) provided evidence for the impact on mental health (depression, anger and anxiety) in sex assigned at birth males. See the clinical effectiveness results table above for a full description of the study. • The mean (±SD) depression (BDI-II) score was not statistically significantly different in sex assigned at birth males compared with sex assigned at birth females at both baseline (T0) (n=not reported, mean BDI score [±SD]: 5.71 [±4.31] versus 10.34 [±8.24]) and T1 (n=not reported, 3.50 [±4.58] versus 6.09 [±7.93]), between sex difference p=0.057 • The mean (±SD) anger (TPI) score was statistically significantly lower (improved) in sex assigned at birth males compared with sex assigned at birth females at both baseline (T0) (n=not reported, mean TPI score [±SD]: 5.22 [±2.76]

versus 6.43 [±2.78]) and T1 (n=not reported, 5.00 [±3.07] versus 6.39 [±2.59]), between sex difference p=0.022
- The mean (±SD) anxiety (STAI) score was statistically significantly lower (improved) in sex assigned at birth males compared with sex assigned at birth females at both baseline (T0) (n=not reported, mean STAI score [±SD]: 4.33 [±2.68] versus 7.00 [±2.36]) and T1 (n=not reported, 4.39 [±2.64] versus 6.17 [±2.69]), between sex difference p<0.001 **(VERY LOW)**.

This study provides very low certainty evidence that the impact on mental health (depression, anger and anxiety) may be different in sex assigned at birth males (transfemales) compared with sex assigned at birth females (transmales). Over time there was no statistically significant difference between sex assigned at birth males and sex assigned at birth females for depression. However, sex assigned at birth males had statistically significantly lower levels of anger and anxiety than sex assigned at birth females at both baseline and follow up.

Impact on body image
One uncontrolled prospective observational longitudinal study (de Vries et al. 2011) provided evidence relating to the impact on body image in sex assigned at birth males.
- The mean (±SD) BIS score for primary sex characteristics was statistically significantly lower (improved) in sex assigned at birth males compared with sex assigned at birth females at both baseline (T0) (n=not reported, mean BIS score [±SD]: 4.02 [±0.61] versus 4.16 [±0.52]) and T1 (n=not reported, 3.74 [±0.78] versus 4.17 [±0.58]), between sex difference p=0.047
- The mean (±SD) BIS score for secondary sex was statistically significantly lower (improved) in sex assigned at birth males compared with sex assigned at birth females at both baseline (T0) (n=not reported, mean BIS score [±SD]: 2.66 [±0.50] versus 2.81 [±0.76]) and T1 (n=not reported, 2.39 [±0.69] versus 3.18 [±0.42]), between sex difference p=0.001
- The mean (±SD) BIS score for neutral body characteristics was not statistically significantly different in sex assigned at birth males compared with sex assigned at birth females at both baseline (T0) (n=not reported, mean BIS score [±SD]: 2.60 [±0.58] versus 2.24 [±0.62]) and T1 (n=not reported, 2.32 [±0.59] versus 2.61 [±0.50]), between sex difference p=0.777 **(VERY LOW)**.

This study provides very low certainty evidence that the impact on body image may be different in sex assigned at birth males (transfemales) compared with sex assigned at birth females (transmales). Sex assigned at birth males are less dissatisfied with their primary and secondary sex characteristics than sex assigned at birth females at both baseline and follow up, but the satisfaction with neutral body characteristics is not different.

Psychosocial impact
One uncontrolled prospective observational longitudinal study (de Vries et al. 2011) provided evidence for psychosocial impact in terms

	of global functioning (CGAS) and psychosocial functioning (CBCL and YSR) in sex assigned at birth males. • Sex assigned at birth males had statistically higher mean (±SD) CGAS scores compared with sex assigned at birth females at both baseline (T0) (n=54, 73.10 [±8.44] versus 67.25 [±11.06]) and T1 (n=54, 77.33 [±8.69] versus 70.30 [±9.44]), between sex difference p=0.021 • There was no statistically significant difference between sex assigned at birth males and sex assigned at birth females for the CBCL Total T score at T0 or T1 (n=54, p=0.110) • There was no statistically significant difference between sex assigned at birth males and sex assigned at birth females for the CBCL internalising T score at T0 or T1 (n=54, p=0.286) • Sex assigned at birth males had statistically lower mean (±SD) CBCL externalising T scores compared with sex assigned at birth females at both T0 (n=54, 54.71 [±12.91] versus 60.70 [±12.64]) and T1 (n=54, 48.75 [±10.22] versus 57.87 [±11.66]), between sex difference p=0.015 • There was no statistically significant difference between sex assigned at birth males and sex assigned at birth females for the YSR Total T score at T0 or T1 (n=54, p=0.164) • There was no statistically significant difference between sex assigned at birth males and sex assigned at birth females for the YSR internalising T score at T0 or T1 (n=54, p=0.825) • Sex assigned at birth males had statistically lower mean (±SD) YSR externalising T scores compared with sex assigned at birth females at both T0 (n=54, 48.72 [±11.38] versus 57.24 [±10.59]) and T1 (n=54, 46.52 [±9.23] versus 52.97 [±8.51]), between sex difference p=0.004 **(VERY LOW)**. One uncontrolled, observational, prospective cohort study (Costa et al. 2015) provided evidence for psychosocial impact in terms of global functioning (CGAS) in sex assigned at birth males. • Sex assigned at birth males had statistically significant lower mean (±SD CGAS scores at baseline) compared with sex assigned at birth females (n=201, 55.4 [±12.7] versus 59.2 [±11.8], p=0.03) **(VERY LOW)**. **These studies provide very low certainty evidence that psychosocial impact may be different in sex assigned at birth males (transfemales) compared with sex assigned at birth females (transmales). However, no conclusions could be drawn.** **Change in bone density: lumbar** Three uncontrolled, observational, retrospective studies provided evidence relating to the effect of GnRH analogues on lumbar bone density in sex assigned at birth males (Joseph et al. 2019, Klink et al. 2015 and Vlot et al. 2017). See the safety results table above for a full description of the results. **These studies provide very low certainty evidence that GnRH analogues reduce the expected increase in lumbar bone density (BMAD or BMD) in sex assigned at birth males (transfemales; although some findings were not statistically significant). These studies also show that GnRH analogues do not statistically**

	significantly decrease actual lumbar bone density (BMAD or BMD) in sex assigned at birth males (transfemales). **Change in bone density: femoral** Three uncontrolled, observational, retrospective studies provided evidence for the effect of GnRH analogues on femoral bone density in sex assigned at birth males (Joseph et al. 2019, Klink et al. 2015 and Vlot et al. 2017). See the safety results table above for a full description of the results. **These studies provide very low certainty evidence that GnRH analogues may reduce the expected increase in femoral bone density (femoral neck or area BMAD or BMD) in sex assigned at birth males (transfemales; although some findings were not statistically significant). These studies also show that GnRH analogues do not statistically significantly decrease actual femoral bone density (femoral area BMAD or femoral neck BMD) in sex assigned at birth males (transfemales).** **Cognitive development or functioning** One cross-sectional observational study (Staphorsius et al. 2015) provided comparative evidence on cognitive development or functioning in sex assigned at birth males. See the safety results table above for a full description of the results. **This study provides very low certainty evidence (with no statistical analysis) on the effects of GnRH analogues on cognitive development or functioning in sex assigned at birth males (transfemales). No conclusions could be drawn.** **Other safety outcomes: kidney function** One prospective observational study (Schagen et al. 2016) provided non-comparative evidence on change in serum creatinine in sex assigned at birth males. See the safety results table above for a full description of the results. **This study provides very low certainty evidence that GnRH analogues do not affect renal function in sex assigned at birth males (transfemales).**
Sex assigned at birth females (transmales) **Certainty of evidence: Very low**	Some studies reported data separately for sex assigned at birth females (transmales). This included some direct comparisons with sex assigned at birth males (transfemales). **Impact on gender dysphoria** One uncontrolled prospective observational longitudinal study (de Vries et al. 2011) and one prospective observational longitudinal study (Costa et al. 2015) provided evidence for gender dysphoria in sex assigned at birth females. See the sex assigned at birth males (transfemales) row above for a full description of the results. **These studies provide very low certainty evidence that in sex assigned at birth females (transmales), gender dysphoria is higher than in sex assigned at birth males (transfemales) at both baseline and follow up.**

	Impact on mental health One uncontrolled prospective observational longitudinal study (de Vries et al. 2011) provided evidence relating to the impact on mental health (depression, anger and anxiety) in sex assigned at birth females. See the sex assigned at birth males (transfemales) row above for a full description of the results. **This study provides very low certainty evidence that the impact on mental health (depression, anger and anxiety) may be different in sex assigned at birth females (transmales) compared with sex assigned at birth males (transfemales). Over time there was no statistically significant difference between sex assigned at birth females and sex assigned at birth males for depression. However, sex assigned at birth females had statistically significantly greater levels of anger and anxiety than sex assigned at birth males at baseline and follow up.** **Impact on body image** One uncontrolled prospective observational longitudinal study (de Vries et al. 2011) provided evidence relating to the impact on body image in sex assigned at birth females. See the sex assigned at birth males (transfemales) row above for a full description of the results. **This study provides very low certainty evidence that the impact on body image may be different in sex assigned at birth females (transmales) compared with sex assigned at birth males (transfemales). Sex assigned at birth females are more dissatisfied with their primary and secondary sex characteristics than sex assigned at birth males at both baseline and follow up, but the satisfaction with neutral body characteristics is not different.** **Psychosocial impact** One uncontrolled prospective observational longitudinal study (de Vries et al. 2011) provided evidence for psychosocial impact in terms of global functioning (CGAS) and psychosocial functioning (CBCL and YSR) in sex assigned at birth females. One uncontrolled, observational, prospective cohort study (Costa et al. 2015) provided evidence for psychosocial impact in terms of global functioning (CGAS) in sex assigned at birth females. See the sex assigned at birth males (transfemales) row above for a full description of the results. **These studies provide very low certainty evidence that psychosocial impact may be different in sex assigned at birth females (transmales) compared with sex assigned at birth males (transfemales). However, no conclusions could be drawn.** **Change in bone density: lumbar** Three uncontrolled, observational, retrospective studies provided evidence relating to the effect of GnRH analogues on lumbar bone density in sex assigned at birth females (Joseph et al. 2019, Klink et al. 2015 and Vlot et al. 2017). See the safety results table above for a full description of the results.

	These studies provide very low certainty evidence that GnRH analogues reduce the expected increase in lumbar bone density (BMAD or BMD) in sex assigned at birth females (transmales; although some findings were not statistically significant). These studies also show that GnRH analogues do not statistically significantly decrease actual lumbar bone density (BMAD or BMD) in sex assigned at birth females (transmales). **Change in bone density: femoral** Three uncontrolled, observational, retrospective studies provided evidence relating to the effect of GnRH analogues on femoral bone density in sex assigned at birth females (Joseph et al. 2019, Klink et al. 2015 and Vlot et al. 2017). See the safety results table above for a full description of the results. **These studies provide very low certainty evidence that GnRH analogues may reduce the expected increase in femoral bone density (femoral neck or area BMAD or BMD) in sex assigned at birth females (transmales; although some findings were not statistically significant). These studies also show that GnRH analogues do not statistically significantly decrease actual femoral bone density (femoral area BMAD or femoral neck BMD) in sex assigned at birth females (transmales), apart from actual femoral area.** **Cognitive development or functioning** One cross-sectional observational study (Staphorsius et al. 2015) provided comparative evidence on cognitive development or functioning in sex assigned at birth females. See the safety results table above for a full description of the results. **This study provides very low certainty evidence (with no statistical analysis) on the effects of GnRH analogues on cognitive development or functioning in sex assigned at birth females (transmales). No conclusions could be drawn.** **Other safety outcomes: kidney function** One prospective observational study (Schagen et al. 2016) provided non-comparative evidence on change in serum creatinine in sex assigned at birth females (transmales). See the safety results table above for a full description of the results. **This study provides very low certainty evidence that GnRH analogues do not affect renal function in sex assigned at birth females (transmales).**
Duration of gender dysphoria	No evidence was identified.
Age at onset of gender dysphoria	No evidence was identified.
Age at which GnRH analogue started	No evidence was identified.
Age at onset of puberty	No evidence was identified.

Tanner stage at which GnRH analogue started	No evidence was identified.
Diagnosis of autistic spectrum disorder	No evidence was identified.
Diagnosis of mental health condition	No evidence was identified.

Abbreviations: BDI-II, Beck Depression Inventory-II; BIS, Body Image Scale; CBCL, Child Behaviour Checklist; CGAS, Children's Global Assessment Scale; SD, standard deviation; STAI, Trait Anxiety Scale of the State-Trait Personality Inventory; TPI, Trait Anger Scale of the State-Trait Personality Inventory; UGDS, Utrecht Gender Dysphoria Scale; YSR, Youth Self-Report

From the evidence selected,

(a) what are the criteria used by the research studies to define gender dysphoria, gender identity disorder and gender incongruence of childhood?

(b) what were the ages at which participants commenced treatment with GnRH analogues?

(c) what was the duration of treatment with GnRH analogues?

Outcome	Evidence statement
Diagnostic criteria	In 5 studies (Costa et al. 2015, Klink et al. 2015, Schagen et al. 2016, Staphorsius et al. 2015 and Vlot et al. 2017) the DSM-IV-TR criteria of gender identity disorder was used. The study by Brik et al. 2020 used DSM-V criteria. The DSM-V has one overarching definition of gender dysphoria with separate specific criteria for children and for adolescents and adults. The general definition describes a conflict associated with significant distress and/or problems functioning associated with this conflict between the way they feel and the way they think of themselves which must have lasted at least 6 months. It was not reported how gender dysphoria was defined in the remaining 3 studies **(VERY LOW)**. **From the evidence selected, all studies that reported diagnostic criteria for gender dysphoria (6/9 studies) used the DSM criteria in use at the time the study was conducted.**
Age when GnRH analogues started	8/9 studies reported the age at which participants started GnRH analogues, either as the mean age (with SD) or median age (with the range): **Study** — **Mean age (±SD)** Costa et al. 2015 — 16.5 years (±1.3) de Vries et al. 2011 — 13.6 years (±1.8) Joseph et al. 2019 — 13.2 years (±1.4) in transfemales; 12.6 years (±1.0) in transmales Khatchadourian et al. 2014 — 14.7 years (±1.9)

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<tr><td></td><td>
<table>
<tr><td>Klink et al. 2015</td><td>14.9 years (±1.9) in transfemales
15.0 years (±2.0) in transmales</td></tr>
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<table>
<tr><th>Study</th><th>Median age (range)</th></tr>
<tr><td>Brik et al. 2020</td><td>15.5 years (11.1–18.6) in transfemales
16.1 years (10.1–17.9) in transmales</td></tr>
<tr><td>Schagen et al. 2016</td><td>13.6 years (11.6–17.9) in transfemales
14.2 years (11.1–18.6) in transmales</td></tr>
<tr><td>Vlot et al. 2017</td><td>13.5 years (11.5–18.3) in transfemales
15.1 years (11.7–18.6) in transmales</td></tr>
</table>
Age at the start of GnRH analogues was not reported in Staphorsius et al. 2015, but participants were required to be at least 12 years (VERY LOW).

The evidence included showed wide variation in the age (11 to 18 years old) at which children and adolescents with gender dysphoria started GnRH analogues.
</td></tr>
<tr><td>Duration of treatment</td><td>The duration of treatment with GnRH analogues was reported in 3/9 studies. The median duration was:
• 2.1 years (range 1.6–2.8) in Brik et al. 2020.
• 1.3 years (range 0.5–3.8) in transfemales and 1.5 years (range 0.25–5.2) in transmales in Klink et al. 2015.

In Staphorsius et al. 2015, the mean duration was 1.6 years (SD ±1.0).

In de Vries et al. 2011, the mean duration of time between starting GnRH analogues and gender-affirming hormones was 1.88 years (SD ±1.05).

The evidence included showed wide variation in the duration of treatment with GnRH analogues, but most studies did not report this information. Treatment duration ranged from a few months up to about 5 years.</td></tr>
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Abbreviations: DSM, Diagnostic and Statistical Manual of Mental Disorders criteria; SD, standard deviation.

6. Discussion

A key limitation to identifying the effectiveness and safety of GnRH analogues for children and adolescents with gender dysphoria is the lack of reliable comparative studies. The lack of clear, expected outcomes from treatment with a GnRH analogue (the purpose of which is to suppress secondary sexual characteristics which may cause distress from unwanted pubertal changes) also makes interpreting the evidence difficult. The size of the population with gender dysphoria means conducting a prospective trial may be unrealistic, at least on a single centre basis. There may also be ethical issues with a 'no treatment arm' in comparative trials of GnRH analogues, where there may be poor mental health outcomes if treatment is withheld. However, the use of an active comparator such as close psychological support may reduce ethical concerns in future trials.

The studies included in this evidence review are all small, uncontrolled observational studies, which are subject to bias and confounding, and are of very low certainty as

assessed using modified GRADE. All the included studies reported physical and mental health comorbidities and concomitant treatments very poorly. For example, very little data are reported on how many children and adolescents needed additional mental health support, and for what reasons, or whether additional interventions, and what form and duration (for example drug treatment or counselling) that took. This is a possible confounder for the treatment outcomes in the studies because changes in critical and important outcomes may be attributable to external care rather than the psychological support or GnRH analogues used in the studies.

The studies that reported diagnostic criteria for gender dysphoria (6/9 studies) used the Diagnostic and Statistical Manual of Mental Disorders (DSM) criteria in use at the time the study was conducted (either DSM-IV-TR or DSM-V). The definition was unclear in the remaining studies. There was wide variation in the ages at which participants started a GnRH analogue, typically ranging from about 11 to 18 years. Similarly, there was a wide variation in the duration of use, but few studies reported this.

Changes in outcome scores for clinical effectiveness were assessed for statistical significance in the 3 studies reporting these outcomes (Costa et al. 2015; de Vries et al. 2011; Staphorsius et al. 2015). However, there is relatively little interpretation of whether the changes in outcome scores seen in these studies are clinically meaningful.

For some outcomes there was no statistically significant difference from before starting GnRH analogues until just before starting gender-affirming hormones. These were the Utrecht Gender Dysphoria Scale (UGDS) (which was assessed in 1 study de Vries et al. 2011), the Trait Anger (TPI) and Trait Anxiety (STAI) Scales (which were assessed in 1 study de Vries et al. 2011), and Body Image Scale (BIS) which was assessed in 1 study (de Vries et al. 2011).

The Beck Depression Inventory (BDI-II) was used in 1 study (de Vries et al. 2011) to assess change in depression from before starting GnRH analogues to just before starting gender-affirming hormones. The result is statistically significant, with the mean (±SD) BDI-II score decreasing from 8.31 (±7.12) at baseline to 4.95 (±6.27) at follow up (p=0.004). However, both scores fall into the minimal range using the general guidelines for interpretation of BDI-II (0 to 13 minimal, 14 to 19 mild depression, 20 to 28 moderate depression and 29 to 63 severe depression), suggesting that while statistically significant, it is unclear if this is a clinically meaningful change.

Psychosocial outcomes were assessed in 3 studies (Costa et al. 2015; de Vries et al. 2011; Staphorsius et al. 2015) using the Children's Global Assessment Scale (CGAS) and Child Behavior Checklist/Youth Self-Report (CBCL/YSR). The CGAS score was assessed in 2 studies (Costa et al. 2015; de Vries et al. 2011). In de Vries et al. 2011 the mean (±SD) CGAS score statistically significantly increased over time from 70.24 [±10.12] at baseline to 73.90 [±9.63] at follow up. CGAS scores are clinically categorised into 10 categories (10 to 1, 20 to 11 and so on until 100 to 91) and both scores reported were in a single category (71 to 80, no more than slight impairment) suggesting that while statistically significant, it is unclear if this is a clinically meaningful change. The Costa et al. 2015 study does highlight a larger change in CGAS scores from baseline to follow-up (mean [±SD] 58.72 [±11.38] compared with 67.40 [±13.39]), but whether this is clinically meaningful is unclear. The average score moved from the clinical category of 60 to 51 (variable functioning with sporadic difficulties) at baseline to 70 to 61 (some difficulty in a single area, but generally

functioning pretty well) at follow up, but the large standard deviations suggest clinically significant overlaps between the scores from baseline to follow-up.

Psychosocial functioning using the CBCL/YSR was assessed in 2 studies (de Vries et al. 2011; Staphorsius et al. 2015). In de Vries et al. 2011 there was a statistically significant reduction in both CBCL and YSR scores from before starting GnRH analogues to just before starting gender-affirming hormones. The study interpreted the CBCL/YSR with a proportion of adolescents who scored in the clinical range (a T-score above 63), which allows changes in clinically meaningful scores to be assessed, and proportions of adolescents in the clinical range for some CBCL and YSR scores decreased over time. One cross-sectional study (Staphorsius et al. 2015) assessed CBCL scores only, but it was unclear if this was the Total T score, or whether subscales of internalising or externalising scores were also assessed, and whether the results were statistically significant.

The 2 prospective observational studies (Costa et al. 2015; de Vries et al. 2011) are confounded by a number of common factors. Firstly, the single assessment of scores at baseline means it is unclear if scores were stable, already improving or declining before starting treatment. Secondly, in an uncontrolled study any changes in scores from baseline to follow-up could be attributed to a regression-to-mean, for example getting older has been positively associated with maturity and wellbeing. The studies use mean and standard deviations in the descriptive statistics and analyses; however, they do not report testing the normality of data which would support the use of parametric measures. The study by de Vries et al. 2011 used general linear models (regression) to examine between and within group variances (changes in outcomes). In using such models, the data is assumed to be balanced (measured at regular intervals and without missing data), but the large ranges in ages at which participants were assessed and started on various interventions suggests that ascertainment of outcome was unlikely to be regular and missing data was likely. Missing data was handled through listwise deletion (omits those cases with the missing data and analyses the remaining data) which is acceptable if data loss is completely random but for some outcomes where there was incomplete data for individual items this was not random (items were introduced by the authors after the first eligible adolescents had started GnRH analogues). The study provided no detail on whether these assumptions for the modeling were met, they also provided no adequate assessment of whether any regression diagnostics (analysis that seek to assess the validity of a model) or model fit (how much of the variance in outcome is explained by the between and within group variance) were undertaken.

The 2 retrospective observational studies (Brik et al. 2020; Khatchadourian et al. 2014) both only report absolute numbers for each trajectory along with reasons for stopping GnRH analogues. It is difficult to assess outcomes from such single centre studies because there is little comparative data for outcomes from other such services. A lack of any critical or other important outcomes also means the success of the treatment across all the participants is difficult to judge.

Three uncontrolled, observational, retrospective studies provided evidence relating to the effect of GnRH analogues on bone density (Joseph et al. 2019; Klink et al. 2015; Vlot et al. 2017). In all 3 studies, the participants acted as their own controls and change in bone density was determined between starting GnRH analogues and either after 1 and 2 year follow-up timepoints (Joseph et al. 2019) or when gender-affirming hormones were started

(Klink et al. 2015 and Vlot et al. 2017). Observational studies such as these can only show an association with GnRH analogues and bone density; they cannot show that GnRH analogues caused any differences in bone density seen. Because there was no comparator group and participants acted as their own controls, it is unclear whether the findings are associated with GnRH analogues or due to changes over time. The authors reported z-scores which allows for comparison with the expected increase in bone density in the general population. However, because no concomitant treatments or comorbidities were reported it is possible that the findings may not be because of GnRH analogues and there is another way in which the study population differs from the general population.

All the studies are from a limited number of, mainly European, care facilities. They are described as either tertiary referral or expert services but the low number of services providing such care and publishing evidence may bias the results towards the outcomes in these services only and limit extrapolation.

The first study (Brik et al. 2020) was an uncontrolled, retrospective, observational study that assessed the outcome trajectories of adolescents receiving GnRH analogues for gender dysphoria. This study followed-up 143 individuals who had received GnRH analogues (38 transfemales and 105 transmales) using clinical records to show outcomes for up to 9 years (continuing use of GnRH analogues, reasons for stopping GnRH analogues and onward care such as gender-affirming hormone use). The methods and results are well reported, but no analysis of data was undertaken. The views of adolescents and their parents are particularly difficult to interpret because no data on how many responded to each question and in what ways are reported.

The second study (Costa et al. 2015) was an uncontrolled, prospective observational study which assessed global functioning in adolescents with gender dysphoria using CGAS every 6 months, including during the first 6 months where statistically significant improvements were seen without GnRH analogues. The study is confounded by significant unexplained loss to follow-up (64.7%: from n=201 adolescents to n=71 after 18 months). Missing data for those lost to follow-up maybe more than sufficient to change the direction of effects seen in the study if the reasons for loss to follow-up are systematic (such as deriving little or no benefit from treatment). The study uses clustered data in its analysis, a single outcome (CGAS) measured in clusters (at different visits), and the analysis does not take account of the correlation of scores (data at different time points are not independent) as a significant change in scores early in the study means the successive changes measured against baseline were also significant. The study relies on multiple (>20) pairwise independent *t*-tests to examine change in CGAS between the 4 time points, increasing the possibility of type-I error (a false positive which occurs when a researcher incorrectly rejects a true null hypothesis) because the more tests performed the more likely a statistically significant result will be observed by chance alone.

The Costa et al. 2015 study compares immediately eligible and delayed eligible cohorts, however, it is highly likely that they are non-comparable groups because the immediately eligible group were those able to start GnRH analogues straight away whilst those in the delayed eligible group were either not ready to make a decision about starting treatment (no age comparison was made between the 2 groups so it is unclear if they were a younger cohort than the immediately eligible group) or had comorbid mental health or psychological difficulties. The authors report that those with concomitant problems (such as mental health

problems, substantial problems with peers, or conflicts with parents or siblings) were referred to local mental health services but no details are provided.

The third study (de Vries et al. 2011) was an uncontrolled, prospective observational study which assessed gender dysphoria and psychological functioning before and after puberty suppression in adolescents with gender dysphoria. Although the study mentions the DSM-IV-TR there is no explicit discussion of this, or any other criteria, being used as the diagnostic criteria for study entry. There are no details reported for how the outcomes in the study were assessed, and by whom. The length of follow-up for the outcomes in the model are questionable in relation to whether there was sufficient time for GnRH analogues to have a measurable effect. The time points used are start of GnRH analogues and start of gender-affirming hormones. Overall, the mean time between starting GnRH analogues and gender-affirming hormones was 1.88 (±1.05) years, but the range is as low as just 5 months between the 2 time points, which may be insufficient for any difference in outcome to have occurred in some individuals.

The fourth study (Joseph et al. 2019) was a retrospective, longitudinal observational single centre study which assessed bone mineral density in adolescents with gender dysphoria in the UK. For inclusion in the study, participants had to have been assessed by the Gender Identity Development Service multi-disciplinary psychosocial health team for at least 4 assessments over a minimum of 6 months. No other diagnostic criteria, such as the DSM-IV-TR, are discussed. Bone density was assessed using dual energy X-ray absorptiometry (DAXA) scan of the lumbar spine (L1-L4) and the femoral neck at baseline (n=70), 1 year (n=70) and 2 years after starting GnRH analogues (n=39). The results suggest a possible association between GnRH analogues and bone mineral apparent density. However, the evidence is of poor quality, and the results could be due to bias or chance. No concomitant treatments or comorbidities were reported.

The fifth study (Khatchadourian et al. 2014) was an uncontrolled retrospective observational study which describes patient characteristics at presentation, treatment, and response to treatment in 84 adolescents with gender dysphoria, of whom 27 received GnRH analogues. The study used clinical records to show outcomes for up to 13 years (continuing use of GnRH analogues, reasons for stopping GnRH analogues and onward care such as gender-affirming hormone use). The methods are well reported but the results for those taking GnRH analogues are poorly and incompletely reported, particularly for transfemales, and no analysis of data was undertaken. It is difficult to assess the results for stopping GnRH analogues due to incomplete reporting of this outcome.

The sixth study (Klink et al. 2015) was a retrospective longitudinal observational single centre study which assessed bone mineral density in adolescents with gender dysphoria, diagnosed with the DSM-IV-TR criteria. Bone density was assessed when starting GnRH analogues and then when starting gender-affirming hormones. Results are reported for transmales and transfemales separately and no results for the whole cohort are given. Statistical analyses were reported for all outcomes of interest but, because there was no comparator group and participants acted as their own controls, it is not known whether the findings are associated with GnRH analogues or due to changes over time. The authors reported z-scores which allows for comparison with the expected increase in bone density in the general population. However, because no concomitant treatments or comorbidities were

reported it is possible that the findings may not be because of GnRH analogues and there is another way in which the study population differs from the general population.

The seventh study (Schagen et al. 2016) was a prospective observational study of 116 adolescents which provided very low certainty non-comparative evidence on change in serum creatinine between starting GnRH analogues and 1 year, and liver function during treatment. Statistical analyses were reported for changes in serum creatinine but not for liver function. Because there was no comparator group and participants acted as their own controls, it is not known whether the findings are associated with GnRH analogues or due to changes over time, or concomitant treatments.

The eighth study (Staphorsius et al. 2015) was a cross-sectional study of 85 adolescents, 40 with gender dysphoria (of whom 20 were receiving GnRH analogues) and 45 matched controls (not further reported in this evidence review). The study includes 1 outcome of interest for clinical effectiveness (CBCL) and 1 outcome of interest for safety (cognitive development or functioning). The mean (±SD) CBCL, IQ test, reaction time and accuracy scores were given for each group, but the statistical analysis is unclear. It is not reported what analysis was used or which of the groups were compared, therefore it is difficult to interpret the results.

The ninth study (Vlot et al. 2017) was a retrospective observational study which assessed bone mineral apparent density in adolescents with DSM-IV-TR gender dysphoria. Measurements were taken at the start of GnRH analogues and at the start of gender-affirming hormones. Results are reported for young bone age and old bone age in transmales and transfemales separately, and no results for the whole cohort are given. Statistical analyses were reported for all outcomes of interest but, because there was no comparator group and participants acted as their own controls, it is not known whether the findings are associated with GnRH analogues or due to changes over time. The authors reported z-scores which allows for comparison with the expected increase in bone density in the general population. However, because no concomitant treatments or comorbidities were reported it is possible that the findings may not be because of GnRH analogues and there is another way in which the study population differs from the general population.

7. Conclusion

The results of the studies that reported impact on the critical outcomes of gender dysphoria and mental health (depression, anger and anxiety), and the important outcomes of body image and psychosocial impact (global and psychosocial functioning) in children and adolescents with gender dysphoria are of very low certainty using modified GRADE. They suggest little change with GnRH analogues from baseline to follow-up.

Studies that found differences in outcomes could represent changes that are either of questionable clinical value, or the studies themselves are not reliable and changes could be due to confounding, bias or chance. It is plausible, however, that a lack of difference in scores from baseline to follow-up is the effect of GnRH analogues in children and adolescents with gender dysphoria, in whom the development of secondary sexual characteristics might be expected to be associated with an increased impact on gender dysphoria, depression, anxiety, anger and distress over time without treatment. One study reported statistically significant reductions in the Child Behaviour Checklist/Youth Self-Report (CBCL/YSR) scores from

baseline to follow up, and given that the purpose of GnRH analogues is to reduce distress caused by the development of secondary sexual characteristics and the CBCL/YSR in part measures distress, this could be an important finding. However, as the studies all lack reasonable controls not receiving GnRH analogues, the natural history of the outcomes measured in the studies is not known and any positive changes could be a regression to mean.

The results of the studies that reported bone density outcomes suggest that GnRH analogues may reduce the increase in bone density which is expected during puberty. However, as the studies themselves are not reliable, the results could be due to confounding, bias or chance. While controlled trials may not be possible, comparative studies are needed to understand this association and whether the effects of GnRH analogues on bone density are seen after treatment is stopped. All the studies that reported safety outcomes provided very low certainty evidence.

No cost-effectiveness evidence was found to determine whether or not GnRH analogues are cost-effective for children and adolescents with gender dysphoria.

The results of the studies that reported outcomes for subgroups of children and adolescents with gender dysphoria, suggest there may be differences between sex assigned at birth males (transfemales) and sex assigned at birth females (transmales).

Appendix A PICO document

The review questions for this evidence review are:

1. For children and adolescents with gender dysphoria, what is the clinical effectiveness of treatment with GnRH analogues compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention?
2. For children and adolescents with gender dysphoria, what is the short-term and long-term safety of GnRH analogues compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention?
3. For children and adolescents with gender dysphoria, what is the cost-effectiveness of GnRH analogues compared to one or a combination of psychological support, social transitioning to the desired gender or no intervention?
4. From the evidence selected, are there any subgroups of children and adolescents with gender dysphoria that may derive more (or less) advantage from treatment with GnRH analogues than the wider population of children and adolescents with gender dysphoria?
5. From the evidence selected,
   a) what are the criteria used by the research studies to define gender dysphoria, gender identity disorder and gender incongruence of childhood?
   b) what were the ages at which participants commenced treatment with GnRH analogues?
   c) what was the duration of treatment with GnRH analogues?

PICO table

P – Population and Indication	Children and adolescents aged 18 years or less who have gender dysphoria, gender identity disorder or gender incongruence of childhood as defined by study: The following subgroups of children and adolescents with gender dysphoria, gender identity disorder or gender incongruence of childhood need to be considered: • Sex assigned at birth males. • Sex assigned at birth females. • The duration of gender dysphoria: less than 6 months, 6-24 months, and more than 24 months. • The age of onset of gender dysphoria. • The age at which treatment was initiated. • The age of onset of puberty. • Tanner stage at which treatment was initiated. • Children and adolescents with gender dysphoria who have a pre-existing diagnosis of autistic spectrum disorder. • Children and adolescents with gender dysphoria who had a significant mental health symptom load at diagnosis including anxiety, depression (with or without a history of self-harm and suicidality), suicide attempts, psychosis, personality disorder, Attention Deficit Hyperactivity Disorder and eating disorders.
I – Intervention	Any GnRH analogue including: triptorelin*; buserelin; histrelin; goserelin (Zoladex); leuprorelin/leuprolide (Prostap); nafarelin.

	* Triptorelin (brand names Gonapeptyl and Decapeptyl) are used in Leeds Hospital, England. The search should include brand names as well as generic names.
C – Comparator(s)	One or a combination of: • Psychological support. • Social transitioning to the gender with which the individual identifies. • No intervention.
O – Outcomes	There are no known minimal clinically important differences and there are no preferred timepoints for the outcome measures selected. **All outcomes should be stratified by:** • The age at which treatment with GnRH analogues was initiated. • The length of treatment with GnRH analogues where possible. **A: Clinical Effectiveness** *Critical to decision making* • **Impact on Gender Dysphoria** This outcome is critical because gender dysphoria in adolescents and children is associated with significant distress and problems functioning. Impact on gender dysphoria may be measured by the Utrecht Gender Dysphoria Scale. Other measures as reported in studies may be used as an alternative to the stated measure. • **Impact on mental health** Examples of mental health problems include self-harm, thoughts of suicide, suicide attempts, eating disorders, depression/low mood and anxiety. These outcomes are critical because self-harm and thoughts of suicide have the potential to result in significant physical harm and for completed suicides the death of the young person. Disordered eating habits may cause significant morbidity in young people. Depression and anxiety are also critical outcomes because they may impact on social, occupational, or other areas of functioning of children and adolescents. The Child and Adolescent Psychiatric Assessment (CAPA) may be used to measure depression and anxiety. The impact on self-harm and suicidality (ideation and behaviour) may be measured using the Suicide Ideation Questionnaire Junior. Other measures may be used as an alternative to the stated measures. • **Impact on Quality of Life** This outcome is critical because gender dysphoria in children and adolescents may be associated with a significant reduction in health-related quality of life. Quality of Life may be measured by the KINDL questionnaire, Kidscreen 52. Other measures as reported in studies may be used as an alternative to the stated measure. *Important to decision making* • **Impact on body Image** This outcome is important because some transgender young people may desire to take steps to suppress features of their physical appearance associated with their sex assigned at birth or accentuate physical features of their desired gender. The Body Image Scale could be used as a measure. Other measures

	as reported in studies may also be used as an alternative to the stated measure. • **Psychosocial Impact** Examples of psychosocial impact are: coping mechanisms which may impact on substance misuse; family relationships; peer relationships. This outcome is important because gender dysphoria in adolescents and children is associated with internalising and externalising behaviours and emotional and behavioural problems which may impact on social and occupational functioning. The child behavioural check list (CBCL) may be used to measure the impact on psychosocial functioning. Other measures as reported in studies may be used as an alternative to the stated measure. • **Engagement with health care services** This outcome is important because patient engagement with healthcare services will impact on their clinical outcomes. Engagement with health care services may be measured using the Youth Health Care measure-satisfaction, utilization, and needs (YHC-SUN) questionnaire. Loss to follow up should also be ascertained as part of this outcome. Alternative measures to the YHC-SUN questionnaire may be used as reported in studies. • **Transitioning surgery – Impact on extent of and satisfaction with surgery** This outcome is important because some children and adolescents with gender dysphoria may proceed to transitioning surgery. Stated measures of the extent of transitioning surgery and satisfaction with surgery in studies may be reported. • **Stopping treatment** The proportion of patients who stop treatment with GnRH analogues and the reasons why. This outcome is important to patients because there is uncertainty about the short- and long-term safety and adverse effects of GnRH analogues in children and adolescents being treated for gender dysphoria. **B: Safety** • Short and long-term safety and adverse effects of taking GnRH analogues are important because GnRH analogues are not licensed for the treatment of adolescents and children with gender dysphoria. Aspects to be reported on should include: o Impact of the drug use such as its impact on bone density, arterial hypertension, cognitive development/functioning o Impact of withdrawing the drug such as, slipped upper femoral epiphysis, reversibility on the reproductive system, and any others as reported. **C: Cost effectiveness** Cost effectiveness studies should be reported.
Inclusion criteria	
Study design	Systematic reviews, randomised controlled trials, controlled clinical trials, cohort studies. If no higher level quality evidence is found, case series can be considered.

Language	English only
Patients	Human studies only
Age	18 years or less
Date limits	2000-2020
Exclusion criteria	
Publication type	Conference abstracts, non-systematic reviews, narrative reviews, commentaries, letters, editorials, guidelines and pre-publication prints
Study design	Case reports, resource utilisation studies

Appendix B Search strategy

Medline, Embase, the Cochrane Library, HTA and APA PsycInfo were searched on 23 July 2020, limiting the search to papers published in English language in the last 20 years. Conference abstracts and letters were excluded.

Database: Medline
Platform: Ovid
Version: Ovid MEDLINE(R) <1946 to July 21, 2020>
Search date: 23/7/2020
Number of results retrieved: 144
Search strategy:

1 Gender Dysphoria/ (485)
2 Gender Identity/ (18452)
3 "Sexual and Gender Disorders"/ (75)
4 Transsexualism/ (3758)
5 Transgender Persons/ (3143)
6 Health Services for Transgender Persons/ (136)
7 exp Sex Reassignment Procedures/ (836)
8 (gender* adj3 (dysphori* or affirm* or incongruen* or identi* or disorder* or confus* or minorit* or queer*)).tw. (7435)
9 (transgend* or transex* or transsex* or transfem* or transwom* or transma* or transmen* or transperson* or transpeopl*).tw. (12678)
10 (trans or crossgender* or cross-gender* or crossex* or cross-sex* or genderqueer*).tw. (102343)
11 ((sex or gender*) adj3 (reassign* or chang* or transform* or transition*)).tw. (6974)
12 (male-to-female or m2f or female-to-male or f2m).tw. (114841)
13 or/1-12 (252702)
14 exp Infant/ or Infant Health/ or Infant Welfare/ (1137479)
15 (prematur* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (852400)
16 exp Child/ or exp Child Behavior/ or Child Health/ or Child Welfare/ (1913257)

17 Minors/ (2574)
18 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (2361686)
19 exp pediatrics/ (58118)
20 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (836269)
21 Adolescent/ or Adolescent Behavior/ or Adolescent Health/ (2024207)
22 Puberty/ (13278)
23 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (424246)
24 Schools/ (38104)
25 Child Day Care Centers/ or exp Nurseries/ or Schools, Nursery/ (7199)
26 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (468992)
27 (("eight" or "nine" or "ten" or "eleven" or "twelve" or "thirteen" or "fourteen" or "fifteen" or "sixteen" or "seventeen" or "eighteen" or "nineteen") adj2 (year or years or age or ages or aged)).ti,ab. (89353)
28 (("8" or "9" or "10" or "11" or "12" or "13" or "14" or "15" or "16" or "17" or "18" or "19") adj2 (year or years or age or ages or aged)).ti,ab. (887838)
29 or/14-28 (5534171)
30 13 and 29 (79263)
31 (transchild* or transyouth* or transteen* or transadoles* or transgirl* or transboy*).tw. (7)
32 30 or 31 (79263)
33 Gonadotropin-Releasing Hormone/ (27588)
34 (pubert* adj3 block*).ti,ab. (78)
35 ((gonadotrophin or gonadotropin) and releasing).ti,ab. (17299)
36 (GnRH adj2 analog*).ti,ab. (2541)
37 GnRH*.ti,ab. (20991)
38 "GnRH agonist*".ti,ab. (4040)
39 Triptorelin Pamoate/ (1906)
40 triptorelin.ti,ab. (677)
41 arvekap.ti,ab. (1)
42 ("AY 25650" or AY25650).ti,ab. (1)
43 ("BIM 21003" or BIM21003).ti,ab. (0)
44 ("BN 52014" or BN52014).ti,ab. (0)
45 ("CL 118532" or CL118532).ti,ab. (0)
46 Debio.ti,ab. (83)
47 diphereline.ti,ab. (17)
48 moapar.ti,ab. (0)
49 pamorelin.ti,ab. (0)
50 trelstar.ti,ab. (3)
51 triptodur.ti,ab. (1)
52 ("WY 42422" or WY42422).ti,ab. (0)
53 ("WY 42462" or WY42462).ti,ab. (0)
54 gonapeptyl.ti,ab. (0)
55 decapeptyl.ti,ab. (210)
56 salvacyl.ti,ab. (0)
57 Buserelin/ (2119)
58 buserelin.ti,ab. (1304)

59 bigonist.ti,ab. (0)
60 ("hoe 766" or hoe-766 or hoe766).ti,ab. (69)
61 profact.ti,ab. (2)
62 receptal.ti,ab. (30)
63 suprecur.ti,ab. (4)
64 suprefact.ti,ab. (22)
65 tiloryth.ti,ab. (0)
66 histrelin.ti,ab. (55)
67 "LHRH-hydrogel implant".ti,ab. (1)
68 ("RL 0903" or RL0903).ti,ab. (1)
69 ("SPD 424" or SPD424).ti,ab. (1)
70 goserelin.ti,ab. (875)
71 Goserelin/ (1612)
72 ("ici 118630" or ici118630).ti,ab. (51)
73 ("ZD-9393" or ZD9393).ti,ab. (0)
74 zoladex.ti,ab. (379)
75 leuprorelin.ti,ab. (413)
76 carcinil.ti,ab. (0)
77 enanton*.ti,ab. (23)
78 ginecrin.ti,ab. (0)
79 leuplin.ti,ab. (13)
80 Leuprolide/ (2900)
81 leuprolide.ti,ab. (1743)
82 lucrin.ti,ab. (11)
83 lupron.ti,ab. (162)
84 provren.ti,ab. (0)
85 procrin.ti,ab. (3)
86 ("tap 144" or tap144).ti,ab. (40)
87 (a-43818 or a43818).ti,ab. (3)
88 Trenantone.ti,ab. (1)
89 staladex.ti,ab. (0)
90 prostap.ti,ab. (6)
91 Nafarelin/ (327)
92 nafarelin.ti,ab. (251)
93 ("76932-56-4" or "76932564").ti,ab. (0)
94 ("76932-60-0" or "76932600").ti,ab. (0)
95 ("86220-42-0" or "86220420").ti,ab. (0)
96 ("rs 94991 298" or rs94991298).ti,ab. (0)
97 synarel.ti,ab. (12)
98 deslorelin.ti,ab. (263)
99 gonadorelin.ti,ab. (201)
100 ("33515-09-2" or "33515092").ti,ab. (0)
101 ("51952-41-1" or "51952411").ti,ab. (0)
102 ("52699-48-6" or "52699486").ti,ab. (0)
103 cetrorelix.ti,ab. (463)
104 cetrotide.ti,ab. (41)
105 ("NS 75A" or NS75A).ti,ab. (0)
106 ("NS 75B" or NS75B).ti,ab. (0)

107 ("SB 075" or SB075).ti,ab. (0)
108 ("SB 75" or SB75).ti,ab. (63)
109 gonadoliberin.ti,ab. (143)
110 kryptocur.ti,ab. (6)
111 cetrorelix.ti,ab. (463)
112 cetrotide.ti,ab. (41)
113 antagon.ti,ab. (17)
114 ganirelix.ti,ab. (138)
115 ("ORG 37462" or ORG37462).ti,ab. (3)
116 orgalutran.ti,ab. (20)
117 ("RS 26306" or RS26306).ti,ab. (5)
118 ("AY 24031" or AY24031).ti,ab. (0)
119 factrel.ti,ab. (11)
120 fertagyl.ti,ab. (11)
121 lutrelef.ti,ab. (5)
122 lutrepulse.ti,ab. (3)
123 relefact.ti,ab. (10)
124 fertiral.ti,ab. (0)
125 (hoe471 or "hoe 471").ti,ab. (6)
126 relisorm.ti,ab. (4)
127 cystorelin.ti,ab. (18)
128 dirigestran.ti,ab. (5)
129 or/33-128 (42216)
130 32 and 129 (416)
131 limit 130 to english language (393)
132 limit 131 to (letter or historical article or comment or editorial or news or case reports) (36)
133 131 not 132 (357)
134 animals/ not humans/ (4686361)
135 133 not 134 (181)
136 limit 135 to yr="2000 -Current" (144)

Database: Medline in-process
Platform: Ovid
Version: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <1946 to July 21, 2020>
Search date: 23/7/2020
Number of results retrieved:
Search strategy: 42

1 Gender Dysphoria/ (0)
2 Gender Identity/ (0)
3 "Sexual and Gender Disorders"/ (0)
4 Transsexualism/ (0)
5 Transgender Persons/ (0)
6 Health Services for Transgender Persons/ (0)
7 exp Sex Reassignment Procedures/ (0)

8 (gender* adj3 (dysphori* or affirm* or incongruen* or identi* or disorder* or confus* or minorit* or queer*)).tw. (1645)
9 (transgend* or transex* or transsex* or transfem* or transwom* or transma* or transmen* or transperson* or transpeopl*).tw. (2333)
10 (trans or crossgender* or cross-gender* or crossex* or cross-sex* or genderqueer*).tw. (20884)
11 ((sex or gender*) adj3 (reassign* or chang* or transform* or transition*)).tw. (968)
12 (male-to-female or m2f or female-to-male or f2m).tw. (15513)
13 or/1-12 (39905)
14 exp Infant/ or Infant Health/ or Infant Welfare/ (0)
15 (prematur* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (80723)
16 exp Child/ or exp Child Behavior/ or Child Health/ or Child Welfare/ (0)
17 Minors/ (0)
18 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (321871)
19 exp pediatrics/ (0)
20 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (119783)
21 Adolescent/ or Adolescent Behavior/ or Adolescent Health/ (0)
22 Puberty/ (0)
23 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (60264)
24 Schools/ (0)
25 Child Day Care Centers/ or exp Nurseries/ or Schools, Nursery/ (0)
26 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (69233)
27 (("eight" or "nine" or "ten" or "eleven" or "twelve" or "thirteen" or "fourteen" or "fifteen" or "sixteen" or "seventeen" or "eighteen" or "nineteen") adj2 (year or years or age or ages or aged)).ti,ab. (10319)
28 (("8" or "9" or "10" or "11" or "12" or "13" or "14" or "15" or "16" or "17" or "18" or "19") adj2 (year or years or age or ages or aged)).ti,ab. (112800)
29 or/14-28 (525529)
30 13 and 29 (9196)
31 (transchild* or transyouth* or transteen* or transadoles* or transgirl* or transboy*).tw. (3)
32 30 or 31 (9197)
33 Gonadotropin-Releasing Hormone/ (0)
34 (pubert* adj3 block*).ti,ab. (19)
35 ((gonadotrophin or gonadotropin) and releasing).ti,ab. (1425)
36 (GnRH adj2 analog*).ti,ab. (183)
37 GnRH*.ti,ab. (1695)
38 "GnRH agonist*".ti,ab. (379)
39 Triptorelin Pamoate/ (0)
40 triptorelin.ti,ab. (72)
41 arvekap.ti,ab. (0)
42 ("AY 25650" or AY25650).ti,ab. (0)
43 ("BIM 21003" or BIM21003).ti,ab. (0)
44 ("BN 52014" or BN52014).ti,ab. (0)
45 ("CL 118532" or CL118532).ti,ab. (0)

46 Debio.ti,ab. (11)
47 diphereline.ti,ab. (6)
48 moapar.ti,ab. (0)
49 pamorelin.ti,ab. (0)
50 trelstar.ti,ab. (0)
51 triptodur.ti,ab. (0)
52 ("WY 42422" or WY42422).ti,ab. (0)
53 ("WY 42462" or WY42462).ti,ab. (0)
54 gonapeptyl.ti,ab. (0)
55 decapeptyl.ti,ab. (8)
56 salvacyl.ti,ab. (0)
57 Buserelin/ (0)
58 buserelin.ti,ab. (59)
59 bigonist.ti,ab. (0)
60 ("hoe 766" or hoe-766 or hoe766).ti,ab. (3)
61 profact.ti,ab. (0)
62 receptal.ti,ab. (0)
63 suprecur.ti,ab. (1)
64 suprefact.ti,ab. (2)
65 tiloryth.ti,ab. (0)
66 histrelin.ti,ab. (9)
67 "LHRH-hydrogel implant".ti,ab. (0)
68 ("RL 0903" or RL0903).ti,ab. (0)
69 ("SPD 424" or SPD424).ti,ab. (0)
70 goserelin.ti,ab. (68)
71 Goserelin/ (0)
72 ("ici 118630" or ici118630).ti,ab. (0)
73 ("ZD-9393" or ZD9393).ti,ab. (0)
74 zoladex.ti,ab. (6)
75 leuprorelin.ti,ab. (47)
76 carcinil.ti,ab. (0)
77 enanton*.ti,ab. (1)
78 ginecrin.ti,ab. (0)
79 leuplin.ti,ab. (1)
80 Leuprolide/ (0)
81 leuprolide.ti,ab. (121)
82 lucrin.ti,ab. (4)
83 lupron.ti,ab. (10)
84 provren.ti,ab. (0)
85 procrin.ti,ab. (0)
86 ("tap 144" or tap144).ti,ab. (0)
87 (a-43818 or a43818).ti,ab. (0)
88 Trenantone.ti,ab. (1)
89 staladex.ti,ab. (0)
90 prostap.ti,ab. (0)
91 Nafarelin/ (0)
92 nafarelin.ti,ab. (5)
93 ("76932-56-4" or "76932564").ti,ab. (0)

94 ("76932-60-0" or "76932600").ti,ab. (0)
95 ("86220-42-0" or "86220420").ti,ab. (0)
96 ("rs 94991 298" or rs94991298).ti,ab. (0)
97 synarel.ti,ab. (0)
98 deslorelin.ti,ab. (14)
99 gonadorelin.ti,ab. (13)
100 ("33515-09-2" or "33515092").ti,ab. (0)
101 ("51952-41-1" or "51952411").ti,ab. (0)
102 ("52699-48-6" or "52699486").ti,ab. (0)
103 cetrorelix.ti,ab. (31)
104 cetrotide.ti,ab. (5)
105 ("NS 75A" or NS75A).ti,ab. (0)
106 ("NS 75B" or NS75B).ti,ab. (0)
107 ("SB 075" or SB075).ti,ab. (0)
108 ("SB 75" or SB75).ti,ab. (2)
109 gonadoliberin.ti,ab. (4)
110 kryptocur.ti,ab. (1)
111 cetrorelix.ti,ab. (31)
112 cetrotide.ti,ab. (5)
113 antagon.ti,ab. (0)
114 ganirelix.ti,ab. (8)
115 ("ORG 37462" or ORG37462).ti,ab. (0)
116 orgalutran.ti,ab. (3)
117 ("RS 26306" or RS26306).ti,ab. (0)
118 ("AY 24031" or AY24031).ti,ab. (0)
119 factrel.ti,ab. (2)
120 fertagyl.ti,ab. (1)
121 lutrelef.ti,ab. (0)
122 lutrepulse.ti,ab. (0)
123 relefact.ti,ab. (0)
124 fertiral.ti,ab. (0)
125 (hoe471 or "hoe 471").ti,ab. (0)
126 relisorm.ti,ab. (0)
127 cystorelin.ti,ab. (1)
128 dirigestran.ti,ab. (0)
129 or/33-128 (2332)
130 32 and 129 (45)
131 limit 130 to english language (45)
132 limit 131 to yr="2000 -Current" (42)

Database: Medline epubs ahead of print
Platform: Ovid
Version: Ovid MEDLINE(R) Epub Ahead of Print <July 21, 2020>
Search date: 23/7/2020
Number of results retrieved: 8
Search strategy:

1 Gender Dysphoria/ (0)

2 Gender Identity/ (0)
3 "Sexual and Gender Disorders"/ (0)
4 Transsexualism/ (0)
5 Transgender Persons/ (0)
6 Health Services for Transgender Persons/ (0)
7 exp Sex Reassignment Procedures/ (0)
8 (gender* adj3 (dysphori* or affirm* or incongruen* or identi* or disorder* or confus* or minorit* or queer*)).tw. (486)
9 (transgend* or transex* or transsex* or transfem* or transwom* or transma* or transmen* or transperson* or transpeopl*).tw. (640)
10 (trans or crossgender* or cross-gender* or crossex* or cross-sex* or genderqueer*).tw. (1505)
11 ((sex or gender*) adj3 (reassign* or chang* or transform* or transition*)).tw. (178)
12 (male-to-female or m2f or female-to-male or f2m).tw. (2480)
13 or/1-12 (4929)
14 exp Infant/ or Infant Health/ or Infant Welfare/ (0)
15 (prematur* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (15496)
16 exp Child/ or exp Child Behavior/ or Child Health/ or Child Welfare/ (0)
17 Minors/ (0)
18 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (53563)
19 exp pediatrics/ (0)
20 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (22796)
21 Adolescent/ or Adolescent Behavior/ or Adolescent Health/ (0)
22 Puberty/ (0)
23 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (13087)
24 Schools/ (0)
25 Child Day Care Centers/ or exp Nurseries/ or Schools, Nursery/ (0)
26 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (12443)
27 (("eight" or "nine" or "ten" or "eleven" or "twelve" or "thirteen" or "fourteen" or "fifteen" or "sixteen" or "seventeen" or "eighteen" or "nineteen") adj2 (year or years or age or ages or aged)).ti,ab. (1416)
28 (("8" or "9" or "10" or "11" or "12" or "13" or "14" or "15" or "16" or "17" or "18" or "19") adj2 (year or years or age or ages or aged)).ti,ab. (20166)
29 or/14-28 (88366)
30 13 and 29 (1638)
31 (transchild* or transyouth* or transteen* or transadoles* or transgirl* or transboy*).tw. (1)
32 30 or 31 (1638)
33 Gonadotropin-Releasing Hormone/ (0)
34 (pubert* adj3 block*).ti,ab. (2)
35 ((gonadotrophin or gonadotropin) and releasing).ti,ab. (176)
36 (GnRH adj2 analog*).ti,ab. (30)
37 GnRH*.ti,ab. (223)
38 "GnRH agonist*".ti,ab. (49)
39 Triptorelin Pamoate/ (0)

40 triptorelin.ti,ab. (12)
41 arvekap.ti,ab. (0)
42 ("AY 25650" or AY25650).ti,ab. (0)
43 ("BIM 21003" or BIM21003).ti,ab. (0)
44 ("BN 52014" or BN52014).ti,ab. (0)
45 ("CL 118532" or CL118532).ti,ab. (0)
46 Debio.ti,ab. (2)
47 diphereline.ti,ab. (1)
48 moapar.ti,ab. (0)
49 pamorelin.ti,ab. (0)
50 trelstar.ti,ab. (0)
51 triptodur.ti,ab. (0)
52 ("WY 42422" or WY42422).ti,ab. (0)
53 ("WY 42462" or WY42462).ti,ab. (0)
54 gonapeptyl.ti,ab. (0)
55 decapeptyl.ti,ab. (0)
56 salvacyl.ti,ab. (0)
57 Buserelin/ (0)
58 buserelin.ti,ab. (7)
59 bigonist.ti,ab. (0)
60 ("hoe 766" or hoe-766 or hoe766).ti,ab. (0)
61 profact.ti,ab. (0)
62 receptal.ti,ab. (0)
63 suprecur.ti,ab. (0)
64 suprefact.ti,ab. (1)
65 tiloryth.ti,ab. (0)
66 histrelin.ti,ab. (2)
67 "LHRH-hydrogel implant".ti,ab. (0)
68 ("RL 0903" or RL0903).ti,ab. (0)
69 ("SPD 424" or SPD424).ti,ab. (0)
70 goserelin.ti,ab. (11)
71 Goserelin/ (0)
72 ("ici 118630" or ici118630).ti,ab. (0)
73 ("ZD-9393" or ZD9393).ti,ab. (0)
74 zoladex.ti,ab. (1)
75 leuprorelin.ti,ab. (13)
76 carcinil.ti,ab. (0)
77 enanton*.ti,ab. (1)
78 ginecrin.ti,ab. (0)
79 leuplin.ti,ab. (0)
80 Leuprolide/ (0)
81 leuprolide.ti,ab. (22)
82 lucrin.ti,ab. (0)
83 lupron.ti,ab. (2)
84 provren.ti,ab. (0)
85 procrin.ti,ab. (0)
86 ("tap 144" or tap144).ti,ab. (1)
87 (a-43818 or a43818).ti,ab. (0)

88 Trenantone.ti,ab. (0)
89 staladex.ti,ab. (0)
90 prostap.ti,ab. (0)
91 Nafarelin/ (0)
92 nafarelin.ti,ab. (4)
93 ("76932-56-4" or "76932564").ti,ab. (0)
94 ("76932-60-0" or "76932600").ti,ab. (0)
95 ("86220-42-0" or "86220420").ti,ab. (0)
96 ("rs 94991 298" or rs94991298).ti,ab. (0)
97 synarel.ti,ab. (0)
98 deslorelin.ti,ab. (3)
99 gonadorelin.ti,ab. (3)
100 ("33515-09-2" or "33515092").ti,ab. (0)
101 ("51952-41-1" or "51952411").ti,ab. (0)
102 ("52699-48-6" or "52699486").ti,ab. (0)
103 cetrorelix.ti,ab. (6)
104 cetrotide.ti,ab. (2)
105 ("NS 75A" or NS75A).ti,ab. (0)
106 ("NS 75B" or NS75B).ti,ab. (0)
107 ("SB 075" or SB075).ti,ab. (0)
108 ("SB 75" or SB75).ti,ab. (0)
109 gonadoliberin.ti,ab. (0)
110 kryptocur.ti,ab. (0)
111 cetrorelix.ti,ab. (6)
112 cetrotide.ti,ab. (2)
113 antagon.ti,ab. (1)
114 ganirelix.ti,ab. (1)
115 ("ORG 37462" or ORG37462).ti,ab. (0)
116 orgalutran.ti,ab. (0)
117 ("RS 26306" or RS26306).ti,ab. (0)
118 ("AY 24031" or AY24031).ti,ab. (0)
119 factrel.ti,ab. (0)
120 fertagyl.ti,ab. (0)
121 lutrelef.ti,ab. (0)
122 lutrepulse.ti,ab. (0)
123 relefact.ti,ab. (0)
124 fertiral.ti,ab. (0)
125 (hoe471 or "hoe 471").ti,ab. (0)
126 relisorm.ti,ab. (0)
127 cystorelin.ti,ab. (0)
128 dirigestran.ti,ab. (0)
129 or/33-128 (310)
130 32 and 129 (8)
131 limit 130 to english language (8)
132 limit 131 to yr="2000 -Current" (8)

Database: Medline daily update
Platform: Ovid

Version: Ovid MEDLINE(R) Daily Update <July 21, 2020>
Search date: 23/7/2020
Number of results retrieved: 1
Search strategy

1 Gender Dysphoria/ (4)
2 Gender Identity/ (38)
3 "Sexual and Gender Disorders"/ (0)
4 Transsexualism/ (2)
5 Transgender Persons/ (26)
6 Health Services for Transgender Persons/ (1)
7 exp Sex Reassignment Procedures/ (3)
8 (gender* adj3 (dysphori* or affirm* or incongruen* or identi* or disorder* or confus* or minorit* or queer*)).tw. (24)
9 (transgend* or transex* or transsex* or transfem* or transwom* or transma* or transmen* or transperson* or transpeopl*).tw. (39)
10 (trans or crossgender* or cross-gender* or crossex* or cross-sex* or genderqueer*).tw. (87)
11 ((sex or gender*) adj3 (reassign* or chang* or transform* or transition*)).tw. (15)
12 (male-to-female or m2f or female-to-male or f2m).tw. (181)
13 or/1-12 (358)
14 exp Infant/ or Infant Health/ or Infant Welfare/ (932)
15 (prematur* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (981)
16 exp Child/ or exp Child Behavior/ or Child Health/ or Child Welfare/ (1756)
17 Minors/ (3)
18 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (3672)
19 exp pediatrics/ (75)
20 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (1658)
21 Adolescent/ or Adolescent Behavior/ or Adolescent Health/ (2006)
22 Puberty/ (8)
23 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (732)
24 Schools/ (56)
25 Child Day Care Centers/ or exp Nurseries/ or Schools, Nursery/ (5)
26 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (622)
27 (("eight" or "nine" or "ten" or "eleven" or "twelve" or "thirteen" or "fourteen" or "fifteen" or "sixteen" or "seventeen" or "eighteen" or "nineteen") adj2 (year or years or age or ages or aged)).ti,ab. (98)
28 (("8" or "9" or "10" or "11" or "12" or "13" or "14" or "15" or "16" or "17" or "18" or "19") adj2 (year or years or age or ages or aged)).ti,ab. (1301)
29 or/14-28 (6705)
30 13 and 29 (130)
31 (transchild* or transyouth* or transteen* or transadoles* or transgirl* or transboy*).tw. (0)
32 30 or 31 (130)
33 Gonadotropin-Releasing Hormone/ (11)

34 (pubert* adj3 block*).ti,ab. (0)
35 ((gonadotrophin or gonadotropin) and releasing).ti,ab. (10)
36 (GnRH adj2 analog*).ti,ab. (2)
37 GnRH*.ti,ab. (14)
38 "GnRH agonist*".ti,ab. (4)
39 Triptorelin Pamoate/ (1)
40 triptorelin.ti,ab. (1)
41 arvekap.ti,ab. (0)
42 ("AY 25650" or AY25650).ti,ab. (0)
43 ("BIM 21003" or BIM21003).ti,ab. (0)
44 ("BN 52014" or BN52014).ti,ab. (0)
45 ("CL 118532" or CL118532).ti,ab. (0)
46 Debio.ti,ab. (1)
47 diphereline.ti,ab. (0)
48 moapar.ti,ab. (0)
49 pamorelin.ti,ab. (0)
50 trelstar.ti,ab. (0)
51 triptodur.ti,ab. (0)
52 ("WY 42422" or WY42422).ti,ab. (0)
53 ("WY 42462" or WY42462).ti,ab. (0)
54 gonapeptyl.ti,ab. (0)
55 decapeptyl.ti,ab. (0)
56 salvacyl.ti,ab. (0)
57 Buserelin/ (0)
58 buserelin.ti,ab. (0)
59 bigonist.ti,ab. (0)
60 ("hoe 766" or hoe-766 or hoe766).ti,ab. (0)
61 profact.ti,ab. (0)
62 receptal.ti,ab. (0)
63 suprecur.ti,ab. (0)
64 suprefact.ti,ab. (0)
65 tiloryth.ti,ab. (0)
66 histrelin.ti,ab. (0)
67 "LHRH-hydrogel implant".ti,ab. (0)
68 ("RL 0903" or RL0903).ti,ab. (0)
69 ("SPD 424" or SPD424).ti,ab. (0)
70 goserelin.ti,ab. (1)
71 Goserelin/ (2)
72 ("ici 118630" or ici118630).ti,ab. (0)
73 ("ZD-9393" or ZD9393).ti,ab. (0)
74 zoladex.ti,ab. (0)
75 leuprorelin.ti,ab. (0)
76 carcinil.ti,ab. (0)
77 enanton*.ti,ab. (0)
78 ginecrin.ti,ab. (0)
79 leuplin.ti,ab. (0)
80 Leuprolide/ (0)
81 leuprolide.ti,ab. (0)

82 lucrin.ti,ab. (0)
83 lupron.ti,ab. (0)
84 provren.ti,ab. (0)
85 procrin.ti,ab. (0)
86 ("tap 144" or tap144).ti,ab. (0)
87 (a-43818 or a43818).ti,ab. (0)
88 Trenantone.ti,ab. (0)
89 staladex.ti,ab. (0)
90 prostap.ti,ab. (0)
91 Nafarelin/ (0)
92 nafarelin.ti,ab. (0)
93 ("76932-56-4" or "76932564").ti,ab. (0)
94 ("76932-60-0" or "76932600").ti,ab. (0)
95 ("86220-42-0" or "86220420").ti,ab. (0)
96 ("rs 94991 298" or rs94991298).ti,ab. (0)
97 synarel.ti,ab. (0)
98 deslorelin.ti,ab. (0)
99 gonadorelin.ti,ab. (0)
100 ("33515-09-2" or "33515092").ti,ab. (0)
101 ("51952-41-1" or "51952411").ti,ab. (0)
102 ("52699-48-6" or "52699486").ti,ab. (0)
103 cetrorelix.ti,ab. (0)
104 cetrotide.ti,ab. (0)
105 ("NS 75A" or NS75A).ti,ab. (0)
106 ("NS 75B" or NS75B).ti,ab. (0)
107 ("SB 075" or SB075).ti,ab. (0)
108 ("SB 75" or SB75).ti,ab. (0)
109 gonadoliberin.ti,ab. (0)
110 kryptocur.ti,ab. (0)
111 cetrorelix.ti,ab. (0)
112 cetrotide.ti,ab. (0)
113 antagon.ti,ab. (0)
114 ganirelix.ti,ab. (0)
115 ("ORG 37462" or ORG37462).ti,ab. (0)
116 orgalutran.ti,ab. (0)
117 ("RS 26306" or RS26306).ti,ab. (0)
118 ("AY 24031" or AY24031).ti,ab. (0)
119 factrel.ti,ab. (0)
120 fertagyl.ti,ab. (0)
121 lutrelef.ti,ab. (0)
122 lutrepulse.ti,ab. (0)
123 relefact.ti,ab. (0)
124 fertiral.ti,ab. (0)
125 (hoe471 or "hoe 471").ti,ab. (0)
126 relisorm.ti,ab. (0)
127 cystorelin.ti,ab. (0)
128 dirigestran.ti,ab. (0)
129 or/33-128 (23)

130 32 and 129 (1)
131 limit 130 to english language (1)
132 limit 131 to yr="2000 -Current" (1)

Database: Embase
Platform: Ovid
Version: Embase <1974 to 2020 July 22>
Search date: 23/7/2020
Number of results retrieved: 367
Search strategy:

1 exp Gender Dysphoria/ (5399)
2 Gender Identity/ (16820)
3 "Sexual and Gender Disorders"/ (24689)
4 Transsexualism/ (3869)
5 exp Transgender/ (6597)
6 Health Services for Transgender Persons/ (158848)
7 exp Sex Reassignment Procedures/ or sex transformation/ (3058)
8 (gender* adj3 (dysphori* or affirm* or incongru* or identi* or disorder* or confus* or minorit* or queer*)).tw. (13005)
9 (transgend* or transex* or transsex* or transfem* or transwom* or transma* or transmen* or transperson* or transpeopl*).tw. (22509)
10 (trans or crossgender* or cross-gender* or crossex* or cross-sex* or genderqueer*).tw. (154446)
11 ((sex or gender*) adj3 (reassign* or chang* or transform* or transition*)).tw. (10327)
12 (male-to-female or m2f or female-to-male or f2m).tw. (200166)
13 or/1-12 (582812)
14 exp juvenile/ or Child Behavior/ or Child Welfare/ or Child Health/ or infant welfare/ or "minor (person)"/ or elementary student/ (3437324)
15 (prematur* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (1186161)
16 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (3586795)
17 exp pediatrics/ (106214)
18 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (1491597)
19 exp adolescence/ or exp adolescent behavior/ or adolescent health/ or high school student/ or middle school student/ (105108)
20 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (641660)
21 school/ or high school/ or kindergarten/ or middle school/ or primary school/ or nursery school/ or day care/ (103791)
22 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (687437)
23 (("eight" or "nine" or "ten" or "eleven" or "twelve" or "thirteen" or "fourteen" or "fifteen" or "sixteen" or "seventeen" or "eighteen" or "nineteen") adj2 (year or years or age or ages or aged)).ti,ab. (138908)
24 (("8" or "9" or "10" or "11" or "12" or "13" or "14" or "15" or "16" or "17" or "18" or "19") adj2 (year or years or age or ages or aged)).ti,ab. (1562903)

25 or/14-24 (7130881)
26 13 and 25 (182161)
27 (transchild* or transyouth* or transteen* or transadoles* or transgirl* or transboy*).tw. (17)
28 26 or 27 (182161)
29 gonadorelin/ (37580)
30 (pubert* adj3 block*).ti,ab. (142)
31 ((gonadotrophin or gonadotropin) and releasing).ti,ab. (21450)
32 (GnRH adj2 analog*).ti,ab. (4013)
33 GnRH*.ti,ab. (29862)
34 "GnRH agonist*".ti,ab. (6719)
35 exp gonadorelin agonist/ or gonadorelin derivative/ or gonadorelin acetate/ (23304)
36 Triptorelin/ (5427)
37 triptorelin.ti,ab. (1182)
38 arvekap.ti,ab. (3)
39 ("AY 25650" or AY25650).ti,ab. (1)
40 ("BIM 21003" or BIM21003).ti,ab. (0)
41 ("BN 52014" or BN52014).ti,ab. (0)
42 ("CL 118532" or CL118532).ti,ab. (0)
43 Debio.ti,ab. (185)
44 diphereline.ti,ab. (51)
45 moapar.ti,ab. (0)
46 pamorelin.ti,ab. (0)
47 trelstar.ti,ab. (5)
48 triptodur.ti,ab. (1)
49 ("WY 42422" or WY42422).ti,ab. (0)
50 ("WY 42462" or WY42462).ti,ab. (0)
51 gonapeptyl.ti,ab. (10)
52 decapeptyl.ti,ab. (307)
53 salvacyl.ti,ab. (1)
54 buserelin acetate/ or buserelin/ (5164)
55 buserelin.ti,ab. (1604)
56 bigonist.ti,ab. (1)
57 ("hoe 766" or hoe-766 or hoe766).ti,ab. (89)
58 profact.ti,ab. (4)
59 receptal.ti,ab. (37)
60 suprecur.ti,ab. (8)
61 suprefact.ti,ab. (30)
62 tiloryth.ti,ab. (0)
63 histrelin/ (446)
64 histrelin.ti,ab. (107)
65 "LHRH-hydrogel implant".ti,ab. (1)
66 ("RL 0903" or RL0903).ti,ab. (1)
67 ("SPD 424" or SPD424).ti,ab. (1)
68 goserelin.ti,ab. (1487)
69 Goserelin/ (7128)
70 ("ici 118630" or ici118630).ti,ab. (49)
71 ("ZD-9393" or ZD9393).ti,ab. (0)

72 zoladex.ti,ab. (501)
73 leuprorelin/ (11312)
74 leuprorelin.ti,ab. (727)
75 carcinil.ti,ab. (0)
76 enanton*.ti,ab. (38)
77 ginecrin.ti,ab. (1)
78 leuplin.ti,ab. (26)
79 leuprolide.ti,ab. (2788)
80 lucrin.ti,ab. (47)
81 lupron.ti,ab. (361)
82 provren.ti,ab. (0)
83 procrin.ti,ab. (11)
84 ("tap 144" or tap144).ti,ab. (63)
85 (a-43818 or a43818).ti,ab. (3)
86 Trenantone.ti,ab. (7)
87 staladex.ti,ab. (0)
88 prostap.ti,ab. (11)
89 nafarelin acetate/ or nafarelin/ (1441)
90 nafarelin.ti,ab. (324)
91 ("76932-56-4" or "76932564").ti,ab. (0)
92 ("76932-60-0" or "76932600").ti,ab. (0)
93 ("86220-42-0" or "86220420").ti,ab. (0)
94 ("rs 94991 298" or rs94991298).ti,ab. (0)
95 synarel.ti,ab. (28)
96 deslorelin/ (452)
97 deslorelin.ti,ab. (324)
98 gonadorelin.ti,ab. (338)
99 ("33515-09-2" or "33515092").ti,ab. (0)
100 ("51952-41-1" or "51952411").ti,ab. (0)
101 ("52699-48-6" or "52699486").ti,ab. (0)
102 cetrorelix/ (2278)
103 cetrorelix.ti,ab. (717)
104 cetrotide.ti,ab. (113)
105 ("NS 75A" or NS75A).ti,ab. (0)
106 ("NS 75B" or NS75B).ti,ab. (0)
107 ("SB 075" or SB075).ti,ab. (1)
108 ("SB 75" or SB75).ti,ab. (76)
109 gonadoliberin.ti,ab. (152)
110 kryptocur.ti,ab. (6)
111 cetrorelix.ti,ab. (717)
112 cetrotide.ti,ab. (113)
113 antagon.ti,ab. (32)
114 ganirelix/ (1284)
115 ganirelix.ti,ab. (293)
116 ("ORG 37462" or ORG37462).ti,ab. (4)
117 orgalutran/ (1284)
118 orgalutran.ti,ab. (68)
119 ("RS 26306" or RS26306).ti,ab. (6)

120 ("AY 24031" or AY24031).ti,ab. (0)
121 factrel.ti,ab. (14)
122 fertagyl.ti,ab. (20)
123 lutrelef.ti,ab. (7)
124 lutrepulse.ti,ab. (6)
125 relefact.ti,ab. (10)
126 fertiral.ti,ab. (0)
127 (hoe471 or "hoe 471").ti,ab. (4)
128 relisorm.ti,ab. (6)
129 cystorelin.ti,ab. (26)
130 dirigestran.ti,ab. (5)
131 or/29-130 (80790)
132 28 and 131 (988)
133 limit 132 to english language (940)
134 133 not (letter or editorial).pt. (924)
135 134 not (conference abstract or conference paper or conference proceeding or "conference review").pt. (683)
136 nonhuman/ not (human/ and nonhuman/) (4649157)
137 135 not 136 (506)
138 limit 137 to yr="2000 -Current" (420)
139 elsevier.cr. (25912990)
140 138 and 139 (372)
141 remove duplicates from 140 (367)

Database: Cochrane Library – incorporating Cochrane Database of Systematic Reviews (CDSR); CENTRAL
Platform: Wiley
Version:
CDSR – Issue 7 of 12, July 2020
CENTRAL – Issue 7 of 12, July 2020
Search date: 23/7/2020
Number of results retrieved: CDSR – 1; CENTRAL - 8.

#1 [mh ^"Gender Dysphoria"] 3
#2 [mh ^"gender identity"] 227
#3 [mh ^"sexual and gender disorders"] 2
#4 [mh ^transsexualism] 27
#5 [mh ^"transgender persons"] 36
#6 [mh ^"health services for transgender persons"] 0
#7 [mh "sex reassignment procedures"] 4
#8 (gender* NEAR/3 (dysphori* or affirm* or incongruen* or identi* or disorder* or confus* or minorit* or queer*)):ti,ab 308
#9 (transgend* or transex* or transsex* or transfem* or transwom* or transma* or transmen* or transperson* or transpeopl*):ti,ab 929
#10 (trans or crossgender* or cross-gender* or crossex* or cross-sex* or genderqueer*):ti,ab 3915
#11 ((sex or gender*) NEAR/3 (reassign* or chang* or transform* or transition*)):ti,ab 493
#12 (male-to-female or m2f or female-to-male or f2m):ti,ab 489

#13 {or #1-#12} 6142
#14 [mh infant] or [mh ^"infant health"] or [mh ^"infant welfare"] 27769
#15 (prematur* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*):ti,ab 69476
#16 [mh child] or [mh "child behavior"] or [mh ^"child health"] or [mh ^"child welfare"] 42703
#17 [mh ^minors] 8
#18 (child* or minor or minors or boy* or girl* or kid or kids or young*):ti,ab 175826
#19 [mh pediatrics]661
#20 (pediatric* or paediatric* or peadiatric*):ti,ab 30663
#21 [mh ^adolescent] or [mh ^"adolescent behavior"] or [mh ^"adolescent health"] 102154
#22 [mh ^puberty] 295
#23 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*):ti,ab 34139
#24 [mh ^schools] 1914
#25 [mh ^"Child Day Care Centers"] or [mh nurseries] or [mh ^"schools, nursery"] 277
#26 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*):ti,ab 54723
#27 (("eight" or "nine" or "ten" or "eleven" or "twelve" or "thirteen" or "fourteen" or "fifteen" or "sixteen" or "seventeen" or "eighteen" or "nineteen") NEAR/2 (year or years or age or ages or aged)):ti,ab 6710
#28 (("8" or "9" or "10" or "11" or "12" or "13" or "14" or "15" or "16" or "17" or "18" or "19") NEAR/2 (year or years or age or ages or aged)):ti,ab 196881
#29 {or #14-#28} 469351
#30 #13 and #29 2146
#31 (transchild* or transyouth* or transteen* or transadoles* or transgirl* or transboy*):ti,ab 0
#32 #30 or #31 2146
#33 [mh ^"Gonadotropin-Releasing Hormone"] 1311
#34 (pubert* NEAR/3 block*):ti,ab 1
#35 ((gonadotrophin or gonadotropin) and releasing):ti,ab 2095
#36 (GnRH NEAR/2 analog*):ti,ab 493
#37 GnRH*:ti,ab 3764
#38 "GnRH agonist*":ti,ab 1399
#39 [mh ^"Triptorelin Pamoate"] 451
#40 triptorelin:ti,ab 451
#41 arvekap:ti,ab 4
#42 ("AY 25650" or AY25650):ti,ab 0
#43 ("BIM 21003" or BIM21003):ti,ab 0
#44 ("BN 52014" or BN52014):ti,ab 0
#45 ("CL 118532" or CL118532):ti,ab 0
#46 Debio:ti,ab 301
#47 diphereline:ti,ab 25
#48 moapar:ti,ab 0
#49 pamorelin:ti,ab 5
#50 trelstar:ti,ab 3

#51 triptodur:ti,ab 0
#52 ("WY 42422" or WY42422):ti,ab 0
#53 ("WY 42462" or WY42462):ti,ab 0
#54 gonapeptyl:ti,ab 11
#55 decapeptyl:ti,ab 135
#56 salvacyl:ti,ab 0
#57 [mh ^Buserelin] 290
#58 Buserelin:ti,ab 339
#59 bigonist:ti,ab 0
#60 ("hoe 766" or hoe-766 or hoe766):ti,ab 11
#61 profact:ti,ab 1
#62 receptal:ti,ab 4
#63 suprecur:ti,ab 0
#64 suprefact:ti,ab 28
#65 tiloryth:ti,ab 0
#66 histrelin:ti,ab 5
#67 "LHRH-hydrogel implant":ti,ab 0
#68 ("RL 0903" or RL0903):ti,ab 0
#69 ("SPD 424" or SPD424):ti,ab 0
#70 goserelin:ti,ab 761
#71 [mh ^goserelin] 568
#72 ("ici 118630" or ici118630):ti,ab 7
#73 ("ZD-9393" or ZD9393):ti,ab 1
#74 zoladex:ti,ab 318
#75 leuprorelin:ti,ab 248
#76 carcinil:ti,ab 0
#77 enanton*:ti,ab 21
#78 ginecrin:ti,ab 1
#79 leuplin:ti,ab 7
#80 [mh ^Leuprolide] 686
#81 leuprolide:ti,ab 696
#82 lucrin:ti,ab 21
#83 lupron:ti,ab 77
#84 provren:ti,ab 0
#85 procrin:ti,ab 2
#86 ("tap 144" or tap144):ti,ab 24
#87 (a-43818 or a43818):ti,ab 0
#88 Trenantone:ti,ab 3
#89 staladex:ti,ab 0
#90 prostap:ti,ab 9
#91 [mh ^Nafarelin] 77
#92 nafarelin:ti,ab 114
#93 ("76932-56-4" or "76932564"):ti,ab 0
#94 ("76932-60-0" or "76932600"):ti,ab 2
#95 ("86220-42-0" or "86220420"):ti,ab 0
#96 ("rs 94991 298" or rs94991298):ti,ab 0
#97 synarel:ti,ab 10
#98 deslorelin:ti,ab 16

#99 gonadorelin:ti,ab 11
#100 ("33515-09-2" or "33515092"):ti,ab 0
#101 ("51952-41-1" or "51952411"):ti,ab 0
#102 ("52699-48-6" or "52699486"):ti,ab 0
#103 cetrorelix:ti,ab 221
#104 cetrotide:ti,ab 111
#105 ("NS 75A" or NS75A):ti,ab 0
#106 ("NS 75B" or NS75B):ti,ab 0
#107 ("SB 075" or SB075):ti,ab 0
#108 ("SB 75" or SB75):ti,ab 10
#109 gonadoliberin:ti,ab 5
#110 kryptocur:ti,ab 0
#111 cetrorelix:ti,ab 221
#112 cetrotide:ti,ab 111
#113 antagon:ti,ab 12
#114 ganirelix:ti,ab 142
#115 ("ORG 37462" or ORG37462):ti,ab 4
#116 orgalutran:ti,ab 45
#117 ("RS 26306" or RS26306):ti,ab 0
#118 ("AY 24031" or AY24031):ti,ab 0
#119 factrel:ti,ab 1
#120 fertagyl:ti,ab 0
#121 lutrelef:ti,ab 0
#122 lutrepulse:ti,ab 1
#123 relefact:ti,ab 1
#124 fertiral:ti,ab 0
#125 (hoe471 or "hoe 471"):ti,ab 3
#126 relisorm:ti,ab 0
#127 cystorelin:ti,ab 0
#128 dirigestran:ti,ab 0
#129 {or #33-#128} 6844
#130 #32 and #129 27
#131 #130 with Cochrane Library publication date Between Jan 2000 and Jul 2020, in Cochrane Reviews 1
#132 #130 27
#133 "conference":pt or (clinicaltrials or trialsearch):so 492465
#134 #132 not #133 9
#135 #134 with Publication Year from 2000 to 2020, in Trials 8

Database: HTA
Platform: CRD
Version: HTA
Search date: 23/7/2020
Number of results retrieved: 26
Search strategy:

1 MeSH DESCRIPTOR Gender Dysphoria EXPLODE ALL TREES 0
2 MeSH DESCRIPTOR Gender Identity EXPLODE ALL TREES 14

3 MeSH DESCRIPTOR Sexual and Gender Disorders EXPLODE ALL TREES 2

4 MeSH DESCRIPTOR Transsexualism EXPLODE ALL TREES 12
5 MeSH DESCRIPTOR Transgender Persons EXPLODE ALL TREES 3
6 MeSH DESCRIPTOR Health Services for Transgender Persons EXPLODE ALL TREES 0
7 MeSH DESCRIPTOR Sex Reassignment Procedures EXPLODE ALL TREES 1

8 ((gender* adj3 (dysphori* or affirm* or incongruen* or identi* or disorder* or confus* or minorit* or queer*))) 28
9 ((transgend* or transex* or transsex* or transfem* or transwom* or transma* or transmen* or transperson* or transpeopl*)) 76
10 ((trans or crossgender* or cross-gender* or crossex* or cross-sex* or genderqueer*)) 83
11 (((sex or gender*) adj3 (reassign* or chang* or transform* or transition*))) 24
12 (male-to-female or m2f or female-to-male or f2m) 86
13 ((transchild* or transyouth* or transteen* or transadoles* or transgirl* or transboy*)) 0
14 #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 262
15 (#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13) IN HTA 30

*26 results are from 200 onwards. Downloaded as a set to sift for drug terms rather than continuing with search strategy.

Database: APA PsycInfo
Search date: July 2020 (Week 2)
Search Strategy:
---
1 Gender Dysphoria/ (936)
2 Gender Identity/ (8648)
3 Transsexualism/ (2825)
4 Transgender/ (5257)
5 exp Gender Reassignment/ (568)
6 (gender* adj3 (dysphori* or affirm* or incongruen* or identi* or disorder* or confus* or minorit* or queer*)).tw. (15471)
7 (transgend* or transex* or transsex* or transfem* or transwom* or transma* or transmen* or transperson* or transpeopl*).tw. (13028)
8 (trans or crossgender* or cross-gender* or crossex* or cross-sex* or genderqueer*).tw. (7679)
9 ((sex or gender*) adj3 (reassign* or chang* or transform* or transition*)).tw. (5796)
10 (male-to-female or m2f or female-to-male or f2m).tw. (63688)
11 or/1-10 (99560)
12 exp Infant Development/ (21841)
13 (prematur* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (150219)

14 Child Characteristics/ or exp Child Behavior/ or Child Psychology/ or exp Child Welfare/ or Child Psychiatry/ (23423)
15 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (984230)
16 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (78962)
17 Adolescent Psychiatry/ or Adolescent Behavior/ or Adolescent Development/ or Adolescent Psychology/ or Adolescent Characteristics/ or Adolescent Health/ (62142)
18 Puberty/ (2753)
19 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (347604)
20 Schools/ or exp elementary school students/ or high school students/ or junior high school students/ or middle school students/ (113053)
21 Child Day Care/ or Nursery Schools/ (2836)
22 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (772814)
23 (("eight" or "nine" or "ten" or "eleven" or "twelve" or "thirteen" or "fourteen" or "fifteen" or "sixteen" or "seventeen" or "eighteen" or "nineteen") adj2 (year or years or age or ages or aged)).ti,ab. (21475)
24 (("8" or "9" or "10" or "11" or "12" or "13" or "14" or "15" or "16" or "17" or "18" or "19") adj2 (year or years or age or ages or aged)).ti,ab. (285697)
25 or/12-24 (1772959)
26 11 and 25 (49612)
27 (transchild* or transyouth* or transteen* or transadoles* or transgirl* or transboy*).tw. (14)
28 26 or 27 (49613)
29 exp Gonadotropic Hormones/ (4226)
30 (pubert* adj3 block*).ti,ab. (29)
31 ((gonadotrophin or gonadotropin) and releasing).ti,ab. (1060)
32 (GnRH adj2 analog*).ti,ab. (49)
33 GnRH*.ti,ab. (998)
34 "GnRH agonist*".ti,ab. (72)
35 triptorelin.ti,ab. (25)
36 arvekap.ti,ab. (0)
37 ("AY 25650" or AY25650).ti,ab. (0)
38 ("BIM 21003" or BIM21003).ti,ab. (0)
39 ("BN 52014" or BN52014).ti,ab. (0)
40 ("CL 118532" or CL118532).ti,ab. (0)
41 Debio.ti,ab. (7)
42 diphereline.ti,ab. (0)
43 moapar.ti,ab. (0)
44 pamorelin.ti,ab. (0)
45 trelstar.ti,ab. (0)
46 triptodur.ti,ab. (0)
47 ("WY 42422" or WY42422).ti,ab. (0)
48 ("WY 42462" or WY42462).ti,ab. (0)
49 gonapeptyl.ti,ab. (0)
50 decapeptyl.ti,ab. (3)
51 salvacyl.ti,ab. (1)

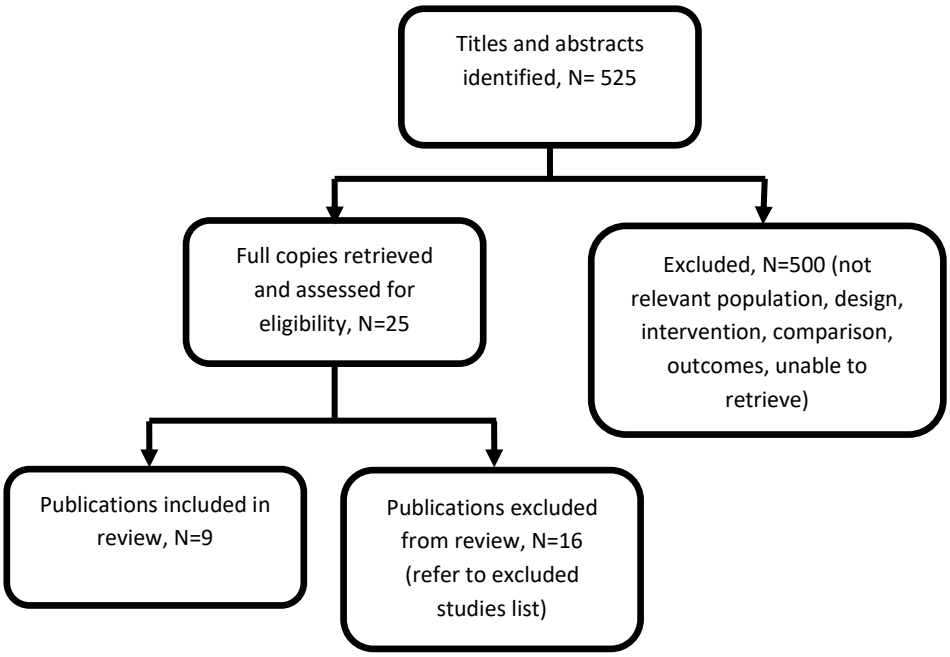
52 buserelin.ti,ab. (6)
53 bigonist.ti,ab. (0)
54 ("hoe 766" or hoe-766 or hoe766).ti,ab. (0)
55 profact.ti,ab. (0)
56 receptal.ti,ab. (0)
57 suprecur.ti,ab. (0)
58 suprefact.ti,ab. (0)
59 tiloryth.ti,ab. (0)
60 histrelin.ti,ab. (1)
61 "LHRH-hydrogel implant".ti,ab. (0)
62 ("RL 0903" or RL0903).ti,ab. (0)
63 ("SPD 424" or SPD424).ti,ab. (0)
64 goserelin.ti,ab. (30)
65 ("ici 118630" or ici118630).ti,ab. (0)
66 ("ZD-9393" or ZD9393).ti,ab. (0)
67 zoladex.ti,ab. (3)
68 leuprorelin.ti,ab. (12)
69 carcinil.ti,ab. (0)
70 enanton*.ti,ab. (1)
71 ginecrin.ti,ab. (0)
72 leuplin.ti,ab. (0)
73 leuprolide.ti,ab. (79)
74 lucrin.ti,ab. (1)
75 lupron.ti,ab. (18)
76 provren.ti,ab. (0)
77 procrin.ti,ab. (0)
78 ("tap 144" or tap144).ti,ab. (1)
79 (a-43818 or a43818).ti,ab. (0)
80 Trenantone.ti,ab. (0)
81 staladex.ti,ab. (0)
82 prostap.ti,ab. (0)
83 nafarelin.ti,ab. (1)
84 ("76932-56-4" or "76932564").ti,ab. (0)
85 ("76932-60-0" or "76932600").ti,ab. (0)
86 ("86220-42-0" or "86220420").ti,ab. (0)
87 ("rs 94991 298" or rs94991298).ti,ab. (0)
88 synarel.ti,ab. (0)
89 deslorelin.ti,ab. (8)
90 gonadorelin.ti,ab. (3)
91 ("33515-09-2" or "33515092").ti,ab. (0)
92 ("51952-41-1" or "51952411").ti,ab. (0)
93 ("52699-48-6" or "52699486").ti,ab. (0)
94 cetrorelix.ti,ab. (9)
95 cetrotide.ti,ab. (0)
96 ("NS 75A" or NS75A).ti,ab. (0)
97 ("NS 75B" or NS75B).ti,ab. (0)
98 ("SB 075" or SB075).ti,ab. (0)
99 ("SB 75" or SB75).ti,ab. (1)

100 gonadoliberin.ti,ab. (1)
101 kryptocur.ti,ab. (0)
102 cetrorelix.ti,ab. (9)
103 cetrotide.ti,ab. (0)
104 antagon.ti,ab. (0)
105 ganirelix.ti,ab. (0)
106 ("ORG 37462" or ORG37462).ti,ab. (0)
107 orgalutran.ti,ab. (0)
108 ("RS 26306" or RS26306).ti,ab. (0)
109 ("AY 24031" or AY24031).ti,ab. (0)
110 factrel.ti,ab. (0)
111 fertagyl.ti,ab. (0)
112 lutrelef.ti,ab. (0)
113 lutrepulse.ti,ab. (0)
114 relefact.ti,ab. (0)
115 fertiral.ti,ab. (0)
116 (hoe471 or "hoe 471").ti,ab. (0)
117 relisorm.ti,ab. (0)
118 cystorelin.ti,ab. (0)
119 dirigestran.ti,ab. (0)
120 or/29-119 (4869)
121 28 and 120 (130)
122 limit 121 to english language (120)
123 limit 122 to yr="2000 -Current" (93)

Appendix C Evidence selection

The literature searches identified 525 references. These were screened using their titles and abstracts and 25 references were obtained and assessed for relevance. Of these, 9 references are included in the evidence review. The remaining 16 references were excluded and are listed in appendix D.

Figure 1 – Study selection flow diagram



References submitted with Preliminary Policy Proposal

There is no preliminary policy proposal for this policy.

Appendix D Excluded studies table

Study reference	Reason for exclusion
Achille, C., Taggart, T., Eaton, N.R. et al. (2020) Longitudinal impact of gender-affirming endocrine intervention on the mental health and well-being of transgender youths: Preliminary results. International Journal of Pediatric Endocrinology 2020(1): 8	Intervention – data for GnRH analogues not reported separately from other interventions
Bechard, Melanie, Vanderlaan, Doug P, Wood, Hayley et al. (2017) Psychosocial and Psychological Vulnerability in Adolescents with Gender Dysphoria: A "Proof of Principle" Study. Journal of sex & marital therapy 43(7): 678-688	Population – no GnRH analogues at time of study
Chew, Denise, Anderson, Jemma, Williams, Katrina et al. (2018) Hormonal Treatment in Young People With Gender Dysphoria: A Systematic Review. Pediatrics 141(4)	All primary studies included apart from 1 conference abstract
de Vries, Annelou L C, McGuire, Jenifer K et al. (2014) Young adult psychological outcome after puberty suppression and gender reassignment. Pediatrics 134(4): 696-704	Population – relevant population included in de Vries et al. 2011
Ghelani, Rahul, Lim, Cheryl, Brain, Caroline et al. (2020) Sudden sex hormone withdrawal and the effects on body composition in late pubertal adolescents with gender dysphoria. Journal of pediatric endocrinology & metabolism: JPEM 33(1): 107-112	Outcomes – not in the PICO

Study reference	Reason for exclusion
Giovanardi, G, Morales, P, Mirabella, M et al. (2019) Transition memories: experiences of trans adult women with hormone therapy and their beliefs on the usage of hormone blockers to suppress puberty. Journal of endocrinological investigation 42(10): 1231-1240	Population – adults only
Hewitt, Jacqueline K, Paul, Campbell, Kasiannan, Porpavai et al. (2012) Hormone treatment of gender identity disorder in a cohort of children and adolescents. The Medical journal of Australia 196(9): 578-81	Outcomes – no data reported for relevant outcomes
Jensen, R.K., Jensen, J.K., Simons, L.K. et al. (2019) Effect of Concurrent Gonadotropin-Releasing Hormone Agonist Treatment on Dose and Side Effects of Gender-Affirming Hormone Therapy in Adolescent Transgender Patients. Transgender Health 4(1): 300-303	Outcomes – not in the PICO
Klaver, Maartje, de Mutsert, Renee, Wiepjes, Chantal M et al. (2018) Early Hormonal Treatment Affects Body Composition and Body Shape in Young Transgender Adolescents. The journal of sexual medicine 15(2): 251-260	Outcomes – not in the PICO
Klaver, Maartje, de Mutsert, Renee van der Loos, Maria A T C et al. (2020) Hormonal Treatment and Cardiovascular Risk Profile in Transgender Adolescents. Pediatrics 145(3)	Outcomes – not in the PICO
Lopez, Carla Marisa, Solomon, Daniel, Boulware, Susan D et al. (2018) Trends in the use of puberty blockers among transgender children in the United States. Journal of pediatric endocrinology & metabolism : JPEM 31(6): 665-670	Outcomes – not in the PICO
Schagen, Sebastian E E, Lustenhouwer, Paul, Cohen-Kettenis, Peggy T et al. (2018) Changes in Adrenal Androgens During Puberty Suppression and Gender-Affirming Hormone Treatment in Adolescents With Gender Dysphoria. The journal of sexual medicine 15(9): 1357-1363	Outcomes – not in the PICO
Swendiman, Robert A, Vogiatzi, Maria G, Alter, Craig A et al. (2019) Histrelin implantation in the pediatric population: A 10-year institutional experience. Journal of pediatric surgery 54(7): 1457-1461	Population – less than 10% of participants had gender dysphoria; data not reported separately
Turban, Jack L, King, Dana, Carswell, Jeremi M et al. (2020) Pubertal Suppression for Transgender Youth and Risk of Suicidal Ideation. Pediatrics 145(2)	Intervention – data for GnRH analogues not reported separately from other interventions
Vrouenraets, Lieke Josephina Jeanne Johanna, Fredriks, A Miranda, Hannema, Sabine E et al. (2016) Perceptions of Sex, Gender, and Puberty Suppression: A Qualitative Analysis of Transgender Youth. Archives of sexual behavior 45(7): 1697-703	Outcomes – not in the PICO
Zucker, Kenneth J, Bradley, Susan J, Owen-Anderson, Allison et al. (2010) Puberty-blocking hormonal therapy for adolescents with gender identity disorder: A descriptive clinical study. Journal of Gay & Lesbian Mental Health 15(1): 58-82	Intervention – data for GnRH analogues not reported separately from other interventions

Appendix E Evidence tables

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Brik T, Vrouenraets L, de Vries M, et al. (2020) Trajectories of adolescents treated with gonadotropin-releasing hormone analogues for gender dysphoria. Archives of Sexual Behaviour https://doi.org/10.1007/s10508-020-01660-8 Netherlands Retrospective observational single-centre study To document trajectories after the initiation of GnRH analogue and explore reasons for extended use and discontinuation of GnRH analogues. Includes participants seen between November 2010 and January 1, 2018.	Inclusion criteria were adolescents with gender dysphoria, according to the DSM-5 criteria, seen at the single centre and treated with GnRH analogues between November 2010 and January 1, 2018. The study excluded adolescents without a diagnosis of gender dysphoria, those who had coexisting problems that interfered with the diagnostic process and/or might interfere with successful treatment (not further defined), those adolescents not wanting hormones, those with ongoing diagnostic evaluation and those who did not attend appointments. The sample consisted of 143 adolescents meeting the inclusion/exclusion criteria, 38 transfemales, 105 transmales, with median ages of 15.0 years (range 11.1 to 18.6 years) and 16.1 years	The study only reports that GnRH analogues were given, no specific drug, dose, route, or frequency of administration are reported. No comparator cohort was used in the study. Follow-up was at (up to) 9 years (last follow-up July 2019).	**Critical outcomes** No critical outcomes assessed. **Important outcomes** ***Psychosocial impact*** Not assessed. ***Engagement with health care services*** Not formally assessed but the study reported that out of 214 age and developmentally appropriate adolescents for potential inclusion in the study, 9 were excluded as they stopped attending appointments (4.2%). ***Stopping treatment*** Of the 143 adolescents, 9 (6.2%, 1 transfemale and 8 transmales) stopped taking GnRH analogues after a median duration of 0.8 years (range 0.1 to 3.0). Four adolescents (2.8%) discontinued GnRH analogues although they wanted to continue endocrine treatments for gender dysphoria: • 1 transmale stopped due to increase in mood problems, suicidal thoughts and confusion attributed to GnRH analogues (later had gender-affirming hormones at an adult gender clinic)[1] • 1 transmale experienced hot flushes, increased migraines, had a fear of injections, stress at school and unrelated medical issues, and	This study was appraised using the Newcastle-Ottawa tool for cohort studies. **Domain 1: Selection** 1. somewhat representative 2. no-non exposed cohort 3. secure record 4. yes **Domain 2: Comparability** 1. no comparator **Domain 3: Outcome** 1. record linkage 2. yes 3. complete follow-up **Overall quality is assessed as poor.** Other comments: Physical and psychological comorbidity was poorly reported, concomitant use of other medicines was not reported. Source of funding: not reported.

	(range 10.1 to 17.9 years), respectively at commencement of GnRH analogues. Of the 143 adolescents in the study, 125 (87%, 36 transfemales and 89 transmales) subsequently started treatment with gender-affirming hormones after median 1.0 (range 0.5 to 3.8) years and 0.8 (0.3 to 3.7) years, respectively. Median age at the start of gender-affirming hormones was 16.2 years (range 14.5 to 18.6 years) in transfemales and 17.1 years (range 14.9 to 18.8 years) in transmales. Five adolescents who used GnRH analogues had not started gender-affirming hormones at the time of data collection as they were not yet eligible for this treatment due to age. At the time of data collection, they had used GnRH analogues for a median duration of 2.1 years (range 1.6 to 2.8). Tanner stage was not reported. Six adolescents had been referred to a gender clinic elsewhere for further		temporarily discontinued treatment (after 4 months)[2] • 1 transmale experienced mood swings 4 months after commencing GnRH analogues. After 2.2 years he developed unexplained severe nausea and rapid weight loss and due to his general condition discontinued GnRH analogues after 2.4 years[3] • 1 transmale stopped GnRH analogues as his parents were unable to regularly collect medication from the pharmacy and take him to appointments for the injections[4] Five adolescents (3.5%) stopped treatment as they no longer wished to continue with gender-affirming treatment. • 1 adolescent had been very distressed about breast development at the start of GnRH analogues and later thought that she might want to live as a woman without breasts. She did not want to live as a boy and discontinued GnRH analogues, although dreaded breast development and menstruation. • 1 adolescent experienced concurrent psychosocial problems interfering with the exploration of gender identity and did not currently want treatment.[5] • 1 adolescent felt more in between male and female and therefore did not want to continue with GnRH analogues.[6] • 1 adolescent made a social transition while using GnRH	

	treatment, including 1 who had prolonged use.		analogues and shortly after decided to discontinue treatment.[7] • 1 adolescent discontinued after using GnRH analogues as the treatment allowed them to feel who they were.[8]	

[1] The adolescent later indicated "I was already fully matured when I started GnRH analogues, menstruations were already suppressed by contraceptives. For me, it had no added value" (transmale, age 19 years).
[2] The adolescent restarted endocrine treatment (testosterone) 5 months later.
[3] The adolescent recovered over the next 2 years and subsequently started lynestrenol and testosterone treatment.
[4] The adolescent subsequently started lynestrenol to suppress menses, he was not yet eligible for testosterone treatment.
[5] The adolescent later reflected that "The decision to stop GnRH analogues to my mind was made by the gender team, because they did not think gender dysphoria was the right diagnosis. I do still feel like a man, but for me it is okay to be just me instead of a he or a she, so for now I do not want any further treatment" (adolescent assigned female sex at birth, age 16 years).
[6] The adolescent stated "At the moment, I feel more like 'I am' instead of 'I am a woman' or 'I am a man'" (adolescent assigned female sex at birth, age 16 years).
[7] The adolescent stated that "he had fallen in love with a girl and had never had such feelings, which made him question his gender identity. At subsequent visits, he indicated that he was happy living as a man.
[8] The adolescent stated "After using GnRH analogues for the first time, I could feel who I was without the female hormones, this gave me peace of mind to think about my future. It was an inner feeling that said I am a woman" (adolescent assigned female sex at birth, age 18 years).

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Costa R, Dunsford M, Skagerberg E, et al. (2015) Psychological support, puberty suppression, and psychosocial functioning in adolescents with gender dysphoria. Journal of Sexual Medicine 12(11):2206-14. United Kingdom Prospective longitudinal observational single centre cohort study Includes participants referred to the service between 2010 and 2014.	Adolescents with gender dysphoria who completed a 6-month diagnostic process using DSM-IV-TR criteria for gender dysphoria (comprising the gender dysphoria assessment and psychological interventions) either immediately eligible for treatment with GnRH analogues or delayed eligible for treatment with GnRH analogues (received psychological support without any physical intervention). No exclusion criteria were reported. The sample consisted of 201 adolescents (sex assigned at birth male to female ratio 1:1.6)	**Intervention** 101 individuals were assessed as being immediately eligible for use of GnRH analogues (no specific treatment, dose or route, or frequency of administration reported but all received psychological support). **Comparison** The analyses were between the immediately eligible	**Critical outcomes** ***Impact on gender dysphoria*** The Utrecht gender dysphoria scale (UGDS) was used to assess adolescents' gender dysphoria related discomfort. The Cronbach's alpha (α) for the study was reported as 0.76 to 0.88, suggesting good internal consistency. UGDS was only reported once, for 160 adolescents (50 sex assigned at birth males and 110 sex assigned at birth females). The assessment time point is not reported (baseline or follow-up) and the comparison for gender related discomfort was between sex assigned at birth males and sex assigned at birth females. Sex assigned at birth males had a mean (±SD) UGDS score of 51.6 [±9.7] versus sex assigned at birth	This study was appraised using the Newcastle-Ottawa tool for cohort studies. **Domain 1: Selection** 1. somewhat representative 2. drawn from the same community as the exposed cohort. 3. secure record 4. no **Domain 2: Comparability** 1. partial comparator **Domain 3: Outcome** 1. independent assessment (unclear if blinded) 2. yes 3. incomplete follow-up

	mean (±SD) age 15.52±1.41 years) from a sampling frame of 436 consecutive adolescents referred to the service between 2010 and 2014. The mean (±SD) age (n=201) at the start of GnRH analogues was 16.48 [±1.26], range 13 to 17 years. The interval from the start of the diagnostic procedure to the start of puberty suppression took approximately 1.5 years [±0.63] from baseline. None of the delayed eligible individuals received puberty suppression at the time of this study. Tanner stage was not reported.	and delayed eligible (n=100) adolescents, Baseline assessment (following diagnostic procedure) was followed by follow-up at 6 months from baseline (T1), 12 months from baseline (T2) and 18 months from baseline (T3).	females score of 56.1 [±4.3], *t*-test 4.07; p<0.001. ***Impact on mental health*** Not assessed. ***Impact on quality of life*** Not assessed. **Important outcomes** ***Psychosocial impact*** The Children's Global Assessment Scale (CGAS) was used to assess adolescents' psychosocial functioning. The CGAS was administered by psychologists, psychotherapists, and psychiatrists (intra-class correlation assessment was 0.76 ≤ Cronbach's α ≤0.94). At baseline, CGAS scores were not associated with any demographic variable, in both sex assigned at birth males and sex assigned at birth females (all p>0.1). In comparison with sex assigned at birth females, sex assigned at birth males had statistically significantly lower mean (±SD) baseline CGAS scores (55.4 [±12.7] versus 59.2 [11.8]; *t*-test 2.15; p=0.03). There was no statistically significant difference in mean (±SD) CGAS scores at baseline (T0) between immediately eligible adolescents and delayed eligible adolescents (n=201, 58.72 [±11.38] versus 56.63 [±13.14]; *t*-test 1.21; p=0.23). **Immediately eligible compared with delayed eligible participants** At follow-up, there was no statistically significant difference in mean (±SD)	**Overall quality is assessed as poor.** Other comments: Physical and psychological comorbidity was poorly reported, concomitant use of other medicines was not reported. Large unexplained loss to follow-up (64.7%) at T3. Source of funding: not reported.

			CGAS scores at any follow-up time point (T1, T2 or T3) between immediately eligible adolescents and delayed eligible adolescents: • T1, n=201, 60.89 [±12.17] versus 60.29 [±12.81]; *t*-test 0.34; p=0.73 • T2, n=121, 64.70 [±13.34] versus 62.97 [±14.10]; *t*-test 0.69; p=0.49 • T3, n=71, 67.40 [±13.93] versus 62.53 [±13.54]; *t*-test 1.49; p=0.14. **All participants** There was a statistically significant increase in mean (±SD) CGAS scores at any follow-up time point (T1, T2 or T3) compared with baseline (T0) for the all adolescents group: • T0 (n=201) versus T1 (n=201), 57.73 [±12.27] versus 60.68 [±12.47]; *t*-test 4.87; p<0.001 • T0 (n=201) versus T2 (n=121), 57.73 [±12.27] versus 63.31 [±14.41]; *t*-test 3.70; p<0.001 • T0 (n=201) versus T3 (n=71), 57.73 [±12.27] versus 64.93 [±13.85]; *t*-test 4.11; p<0.001 There was a statistically significant increase in mean (±SD) CGAS scores when comparing the follow-up period T1 to T3 but not for the periods T1 to T2 and T2 to T3, for all adolescents: • T1 (n=201) versus T2 (n=121), 60.68 [±12.47] versus 63.31 [±14.41]; *t*-test 1.73; p<0.08 • T1 (n=201) versus T3 (n=71), 60.68 [±12.47] versus 64.93 [±13.85], *t*-test 2.40; p<0.02 • T2 (n=121) versus T3 (n=71), 63.31 [±14.41] versus 64.93 [±13.85], *t*-test 0.76; p=0.45	

			There were no statistically significant differences in CGAS scores between sex assigned at birth males and sex assigned at birth females with gender dysphoria in all the follow-up evaluations (all p>0.1). Delayed eligible and immediately eligible adolescents with gender dysphoria were not statistically significantly different for demographic variables (all p>0.1). **Immediately eligible participants** There was a statistically significant increase in mean (±SD) CGAS scores at follow-up times T2 and T3 compared with baseline (T0) but not for T0 versus T1, for the immediately eligible adolescents: • T0 (n=101) versus T1 (n=101), 58.72 [±11.38] versus 60.89 [±12.17]; *t*-test 1.31; p=0.19 • T0 (n=101) versus T2 (n=60), 58.72 [±11.38] versus 64.70 [±13.34]; *t*-test 3.02; p=0.003 • T0 (n=101) versus T3 (n=35), 58.72 [±11.38] versus 67.40 [±13.93]; *t*-test 3.66; p<0.001 There was a statistically significant increase in mean (±SD) CGAS scores when comparing the follow-up period T1 to T3 with each other but not for the periods T1 to T2 and T2 to T3, for the immediately eligible adolescents: • T1 (n=101) versus T2 (n=60), 60.89 [±12.17] versus 64.70 [±13.34]; *t*-test 1.85; p=0.07 • T1 (n=101) versus T3 (n=35), 60.89 [±12.17] versus 67.40 [±13.93], *t*-test 2.63; p<0.001	

			• T2 (n=60) versus T3 (n=35), 64.70 [±13.34] versus 67.40 [±13.93], *t*-test 0.94; p=0.35 The immediately eligible adolescents had a CGAS score which was not statistically significantly different compared to the sample of children/ adolescents without observed psychological /psychiatric symptoms after 12 months of puberty suppression (T3, *t*=0.01, *p*=0.99).	

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
de Vries A, Steensma T, Doreleijers T, et al. (2011) Puberty suppression in adolescents with gender identity disorder: a prospective follow-up study. The Journal of Sexual Medicine 8 (8):2276-83. Netherlands Prospective longitudinal observational single centre before and after study.	The sample size was 70 adolescents receiving GnRH analogues (mean age [±SD] at assessment 13.6±1.8 years) from a sampling frame of 196 consecutive adolescents referred to the service between 2000 and 2008. Inclusion criteria were if they subsequently started gender-affirming hormones between 2003 and 2009 (mean [±SD] age at start of GnRH analogues was 14.75 [±1.92] years)[1]. No specific exclusion criteria were described. No diagnostic criteria or concomitant treatments were reported. Tanner stage of the included adolescents was not reported.	**Intervention** 70 adolescents were assessed at baseline (T0) before the start of GnRH analogues (no specific treatment, dose or route of administration reported). **Comparison** The same 70 adolescents were assessed again at follow-up (T1), shortly before starting gender-affirming hormones. Not all adolescents completed all assessments for all items[2].	**Critical outcomes** ***Impact on gender dysphoria*** Impact on gender dysphoria was assessed using the Utrecht Gender Dysphoria Scale (UGDS). • There was no statistically significant difference in UGDS scores between T0 and T1 (n=41). There was a statistically significant difference between sex assigned at birth males and sex assigned at birth females, with sex assigned at birth females reporting more gender dysphoria, *F* (*df, errdf*), *P*: 15.98 (1,39), p<0.001. ***Impact on mental health*** Depressive symptoms were assessed using the Beck Depression Inventory (BDI-II). • There was a statistically significant reduction in BDI score between T0 and T1, n=41, 8.31 [±7.12] versus 4.95 [±6.72], *F* (*df, errdf*), *P*: 9.28 (1,39), p=0.004. • There was no statistically significant difference between sex assigned at	This study was appraised using the Newcastle-Ottawa tool for cohort studies. **Domain 1: Selection** 1. somewhat representative of children and adolescents who have gender dysphoria 2. no non-exposed cohort 3. no description 4. no **Domain 2: Comparability** 1. study controls for age, age at start of treatment, IQ, and parental factors **Domain 3: Outcome** 1. no description 2. no/unclear 3. complete **Overall quality is assessed as poor**. Other comments: Physical and psychological comorbidity was not reported, concomitant use of

			birth males and sex assigned at birth females, *F* (*df, errdf*), *P*: 3.85 (1,39), p=0.057. Anger and anxiety were assessed using Trait Anger and Anxiety (TPI and STAI, respectively) Scales of the State-Trait Personality Inventory. • There was no statistically significant difference in anger (TPI) scale scores between T0 and T1 (n=41). There was a statistically significant difference between sex assigned at birth males and sex assigned at birth females, with sex assigned at birth females reporting increased anger compared with sex assigned at birth males, *F* (*df, errdf*), *P*: 5.70 (1,39), p=0.022. • Similarly, there was no statistically significant difference in anxiety (STAI) scale scores between T0 and T1 (n=41). There was a statistically significant difference between sex assigned at birth males and sex assigned at birth females, with sex assigned at birth females reporting increased anxiety compared with sex assigned at birth males, *F* (*df, errdf*), *P*: 16.07 (1,39), p<0.001. ***Impact on quality of life*** Not assessed. **Important outcomes** ***Impact on body image*** Impact on body image was assessed using the Body Image Scale to measure body satisfaction (BIS).	other medicines was not reported. Source of funding: This study was supported by a personal grant awarded to the first author by the Netherlands Organization for Health Research and Development.

			There was no statistically significant difference between T0 and T1 for any of the 3 BIS scores (primary sex characteristics, secondary sex characteristics or neutral characteristics, n=57). There were statistically significant differences between sex assigned at birth males and sex assigned at birth females, with sex assigned at birth females reporting more dissatisfaction, for: • primary sexual characteristics, *F* (*df, errdf*), *P*: 4.11 (1,55), p=0.047. • secondary sexual characteristics, *F* (*df, errdf*), *P*: 11.57 (1,55), p=0.001. But no statistically significant difference between sex assigned at birth males and sex assigned at birth females was found for neutral characteristics. However, there was a significant interaction effect between sex assigned at birth sex and the changes of gender dysphoria between T0 and T1; sex assigned at birth females became more dissatisfied with their secondary sex characteristics compared with sex assigned at birth males, *F* (*df, errdf*), *P*: 14.59 (1,55), p<0.001) and neutral characteristics, *F* (*df, errdf*), *P*: 15.26 (1,55), p<0.001). ***Psychosocial impact*** Psychosocial impact was assessed using both the Child Behaviour Checklist (CBCL) and the Youth Self-Report (YSR) to parents and adolescents, respectively. The Children's Global Assessment Scale was also reported. There was a statistically significant decrease in mean (±SD) total, internalising, and externalising[3] parental	

			CBCL scores between T0 and T1[4] for all adolescents (n=54): • Total score (T0 – T1) 60.70 [±12.76] versus 54.46 [±11.23], *F* (*df, errdf*), *P*: 26.17 (1,52), p<0.001. • Internalising score (T0 – T1) 61.00 [±12.21] versus 54.56 [±10.22], *F* (*df, errdf*), *P*: 22.93 (1,52), p<0.001. • Externalising score (T0 – T1) 58.04 [±12.99] versus 53.81 [±11.86], *F* (*df, errdf*), *P*: 12.04 (1,52), p=0.001. There was no statistically significant difference between sex assigned at birth males and sex assigned at birth females for total and internalising CBCL score but there was a significant difference for the externalising score: • Externalising score, *F* (*df, errdf*), *P*: 6.29 (1,52), p=0.015. There was a statistically significant decrease in mean (±SD) total, internalising, and externalising[3] YSR scores between T0 and T1 for all adolescents (n=54): • Total score (T0 – T1) 55.46 [±11.56] versus 50.00 [±10.56], *F* (*df, errdf*), *P*: 16.24 (1,52), p<0.001. • Internalising score (T0 – T1) 56.04 [±12.49] versus 49.78 [±11.63], *F* (*df, errdf*), *P*: 15.05 (1,52), p<0.001. • Externalising score (T0 – T1) 53.30 [±11.87] versus 49.98 [±9.35], *F* (*df, errdf*), *P*: 7.26 (1,52), p=0.009. There was no statistically significant difference between sex assigned at birth males and sex assigned at birth females for total and internalising YSR score but there was a significant difference for the externalising score:	

			• Externalising score, *F* (*df, errdf*), *P*: 9.14 (1,52), p=0.004. There was a statistically significant increase in CGAS mean (±SD) score between T0 and T1 (n=41), 70.24 [±10.12] versus 73.90 [±9.63], *F* (*df, errdf*), *P*: 8.76 (1,39), p=0.005. There was a statistically significant difference between sex assigned at birth males and sex assigned at birth females, with sex assigned at birth females reporting lower score for global functioning compared with sex assigned at birth males, *F* (*df, errdf*), *P*: 5.77 (1,52), p=0.021. The proportion of adolescents scoring in the clinical range significantly decreased between T0 and T1, on the CBCL total problem scale (44.4% versus 22.2%, X^2[1] = 6.00, p=0.001), and the internalising scale (29.6% versus 11.1%, X^2[1] = 5.71, p=0.017) of the YSR.	

[1] There were statistically significant mean age [±SD] differences between sex assigned at birth males and sex assigned at birth females for age at assessment (13.14 [±1.55] versus 14.10 [±1.99] years, p=0.028), age at start of GnRH analogues (14.25 [±1.79] versus 15.21 [±1.95] years, p=0.036) and age at the start of gender-affirming hormones (16.24 [±1.21] versus 16.99 [±1.09] years, p=0.008). No statistically significant differences were seen for other baseline characteristics, time between GnRH analogue and gender-affirming hormones, full scale IQ, parental marital status, education, and sexual attraction to own, other or both sexes.
[2] Independent t-tests between mean scores on the CBCL, YSR, BDI, TPI, STAI, CGAS, UGS, and BIS of adolescents who completed both assessments and mean scores of adolescents who completed only one of the assessments revealed no significant differences on all used measures, at neither T0 or at T1.
[3] The CBCL/YSR has 2 components: Internalising score which sums the anxious/depressed, withdrawn-depressed, and somatic complaints scores; externalising score which sums rule-breaking and aggressive behaviour. The total problems score is the sum of the scores of all the problem items. The YSR is a child self-report version of the CBCL.
[4] A repeated measures ANOVA (analysis of variance) was used.

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Joseph T, Ting J, Butler G. (2019) The effect of GnRH analogue treatment on bone mineral density in young adolescents with gender dysphoria: findings from a large national cohort. Journal of pediatric endocrinology & metabolism 32(10): 1077-1081	Adolescents (12 to 14 years) with gender dysphoria (no diagnostic criteria described), n=70, including 31 transfemales and 39 transmales.	Treatment with a GnRH analogue for at least 1 year or ongoing until they reached 16 years. No specific treatment, dose or route of	**Critical outcomes** No critical outcomes assessed. **Important outcomes** ***Bone density: lumbar[1]*** **Lumbar spine bone mineral apparent density (BMAD)[2] 0 to 1 year** Transfemales (mean [±SD]):	This study was appraised using the Newcastle-Ottawa quality assessment checklist for cohort studies. **Domain 1: Selection**

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
United Kingdom Retrospective longitudinal observational single centre study To investigate whether there is any significant loss of bone mineral density (BMD) and bone mineral apparent density (BMAD) for up to 3 years of GnRH analogues. To investigate whether there was a significant drop after 1 year of treatment following abrupt withdrawal. 2011 to 2016	All had been seen and assessed by a Gender Identity Development Service multi-disciplinary psychosocial health team for at least 4 assessments over a minimum of 6 months. All participants had entered puberty and all but 2 of the transmales were postmenarchal. 57% of the transfemales were in early puberty (G2–3 and testicular volume >4 mL) and 43% were in late puberty (G4–5). Details of the sampling frame were not reported. Further details of how the sample was drawn are not reported.	administration reported. No concomitant treatments were reported. No comparator.	0.235 (0.030) g/cm3 at baseline, 0.233 g/cm3 (0.029) at 1 year (p=0.459); z-score 0.859 (0.154) at baseline, −0.228 (1.027) at 1 year (p=0.000) Transmales (mean [±SD]): 0.196 (0.035) g/cm3 at baseline, 0.201 (0.033) g/cm3 at 1 year (p=0.074); z-score −0.186 (1.230) at baseline, −0.541 (1.396) at 1 year (p=0.006) **Lumbar spine BMAD 0 to 2 years** Transfemales (mean [±SD]): 0.240 (0.027) g/cm3 at baseline, 0.240 (0.030) g/cm3 at 2 years (p=0.865); z-score 0.486 (0.809) at baseline, −0.279 (0.930) at 2 years (p=0.000) Transmales (mean [±SD]): 0.195 (0.058) g/cm3 at baseline, 0.198 (0.055) at 2 years (p=0.433); z-score −0.361 (1.439) at baseline, −0.913 (1.318) at 2 years (p=0.001) **Lumbar spine bone mineral density (BMD) 0 to 1 year** Transfemales (mean [±SD]): 0.860 (0.154) kg/m2 at baseline, 0.859 (0.129) kg/m2 at 1 year (p=0.962); z-score −0.016 (1.106) at baseline, −0.461 (1.121) at 1 year (p=0.003) Transmales (mean [±SD]): 0.694 (0.149) kg/m2 at baseline, 0.718 (0.124) kg/m2 at 1 year (p=0.006); z-score −0.395 (1.428) at baseline, −1.276 (1.410) at 1 year (p=0.000) **Lumbar spine BMD 0 to 2 years** Transfemales (mean [±SD]): 0.867 (0.141) kg/m2 at baseline, 0.878 (0.130) kg/m2 at 2 years (p=0.395); z-score 0.130 (0.972) at baseline, −0.890 (1.075) at 2 years (p=0.000) Transmales (mean [±SD]):	1. Somewhat representative of children and adolescents who have gender dysphoria 2. Not applicable 3. Via routine clinical records 4. No **Domain 2: Comparability** 1. No control group **Domain 3: Outcome** 1. Via routine clinical records 2. Yes 3. No statement **Overall quality is assessed as poor**. Other comments: although the evidence is of poor quality, the results suggest a possible association between GnRH analogues and BMAD. However, the results are not reliable and could be due to bias or chance. Further details of how the sample was drawn are not reported. No concomitant treatments were reported. Source of funding: None disclosed

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
			0.695 (0.220) kg/m2 at baseline, 0.731 (0.209) kg/m2 at 2 years (p=0.058); z-score −0.715 (1.406) at baseline, −2.000 (1.384) at 2 years (p=0.000) ***Bone density: femoral*** **Femoral neck (hip) BMD 0 to 1 year** Transfemales (mean [±SD]): 0.894 (0.118) kg/m2 at baseline, 0.905 (0.104) kg/m2 at 1 year (p=0.571); z-score 0.157 (0.905) at baseline, −0.340 (0.816) at 1 year (p=0.002) Transmales (mean [±SD]): 0.772 (0.137) kg/m2 at baseline, 0.785 (0.120) kg/m2 at 1 year (p=0.797); z-score −0.863 (1.215) at baseline, −1.440 (1.075) at 1 year (p=0.000) **Femoral neck (hip) BMD 0 to 2 years** Transfemales (mean [±SD]): 0.920 (0.116) kg/m2 at baseline, 0.910 (0.125) kg/m2 at 2 years (p=0.402); z-score 0.450 (0.781) at baseline, −0.600 (1.059) at 2 years (p=0.002) Transmales (mean [±SD]): 0.766 (0.215) kg/m2 at baseline, 0.773 (0.197) at 2 years (p=0.604); z-score −1.075 (1.145) at baseline, −1.779 (0.816) at 2 years (p=0.001)	

[1] Lumbar spine (L1-L4) BMD was measured by yearly dual energy X-ray absorptiometry (DXA) scans at baseline (n=70), 1 year (n=70), and 2 years (n=31).
[2] BMAD is a size adjusted value of BMD incorporating body size measurements using UK norms in growing adolescents. Reported as g/cm3 and z-scores. Hip BMAD z-scores were not calculated as there were no available reference ranges.

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Khatchadourian K, Shazhan A, Metzger D. (2014) Clinical management of youth with gender dysphoria in	27 young people with gender dysphoria who started GnRH analogues (at mean age [±SD] 14.7±1.9 years) out of 84 young	**Intervention** 84 young people with gender dysphoria were included. For GnRH analogues no	**Critical Outcomes** No critical outcomes assessed. **Important outcomes** ***Stopping treatment***	This study was appraised using the Newcastle-Ottawa tool for cohort studies. **Domain 1: Selection**

Vancouver. The Journal of Pediatrics 164 (4): 906-11.
 	
Canada
 	
Retrospective observational chart review single centre study
	people seen at the unit between 1998 and 2011.
	Note: the transmale and transfemale subgroups reported in the paper is discrepant, 15 transmales and 11 transfemales (n=26) reported in the outcomes section rather than the n=27 stated in the paper; complete outcome reporting is also incomplete for the transfemale group.
	Inclusion criteria were at least Tanner stage 2 pubertal development, previous assessment by a mental health professional and a confirmed diagnosis of gender dysphoria (diagnostic criteria not specified). No exclusion criteria are specified.
		specific treatment, dose or route of administration reported.
		Comparison
		No comparator.
			The authors report that of 15 transmales taking GnRH analogues:
			• 14 transitioned to testosterone treatment during the observation period
			• 7 continued taking GnRH analogues after starting testosterone
			• 7 discontinued GnRH analogues after a median of 3.0 years (range 0.2 to 9.2 years), of which:
			  ○ 5 discontinued after hysterectomy and salpingo-oophorectomy
			  ○ 1 discontinued after 2.2 years (transitioned to gender-affirming hormone)
			  ○ 1 discontinued after <2 months due to mood and emotional lability
			The authors report that of 11 transfemales taking GnRH analogues:
			• 5 received oestrogen treatment during the observation period
			• 4 continued taking GnRH analogues during oestrogen treatment
			• 1 discontinued GnRH analogues during oestrogen treatment (no reason reported)
			• 1 stopped GnRH analogues after a few months due to emotional lability
			• 1 stopped GnRH analogues before oestrogen treatment (the following year delayed due to heavy smoking)
			• 1 discontinued GnRH analogues after 13 months due to choosing not to pursue transition
			
			Safety
			Of the 27 patients treated with GnRH analogues:
				1. not reported
				2. no non-exposed cohort
				3. secure record
				4. no
				Domain 2: Comparability
				1. not applicable
				Domain 3: Outcome
				1. record linkage
				2. yes
				3. in complete missing data
				
				Overall quality is assessed as poor.
				
				Other comments: mental health comorbidity was reported for all participants but not for the GnRH analogue cohort separately. Concomitant use of other medicines was not reported.
				
				Source of funding: No source of funding identified.

			• 1 transmale participant developed sterile abscesses; they were switched from leuprolide acetate to triptorelin, and this was well tolerated. • 1 transmale participant developed leg pains and headaches on GnRH analogues, which eventually resolved without treatment. • 1 participant gained 19 kg within 9 months of initiating GnRH analogues, although their body mass index was >85 percentile before GnRH analogues.	

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Klink D, Caris M, Heijboer A et al. (2015) Bone mass in young adulthood following gonadotropin-releasing hormone analog treatment and cross-sex hormone treatment in adolescents with gender dysphoria. The Journal of clinical endocrinology and metabolism 100(2): e270-5 Netherlands Retrospective longitudinal observational single centre study To assess BMD development during GnRH analogues and at age 22 years in adolescents with gender dysphoria who started treatment for gender dysphoria during adolescence.	34 adolescents (mean age ±SD 14.9±1.9 for transfemales and 15.0±2.0 for transmales at start of GnRH analogues). Participants were included if they met DSM-IV-TR criteria for gender identity disorder of adolescence and had been treated with GnRH analogues and gender-affirming hormones during their pubertal years. No concomitant treatments were reported.	The intervention was GnRH analogue monotherapy (triptorelin pamoate 3.75 mg subcutaneously every 4 weeks) followed by gender-affirming hormones from 16 years with discontinuation of GnRH analogue after gonadectomy. Median duration of GnRH analogue monotherapy in transfemales was 1.3 years (range, 0.5 to 3.8 years), and in transmales was 1.5 years	**Critical outcomes** No critical outcomes assessed. **Important outcomes** ***Bone density: lumbar*** **Lumbar spine bone mineral apparent density (BMAD)[1]** Change from starting GnRH analogue (mean age 14.9±1.9) to starting gender-affirming hormones (mean age 16.6±1.4) in transfemales (mean [±SD]): GnRH analogue: 0.22 (0.03) g/cm3, gender-affirming hormones: 0.22 (0.02) g/cm3 (NS); z-score GnRH analogue: −0.44 (1.10), gender-affirming hormones: −0.90 (0.80) (p=NS) Change from starting GnRH analogue (mean age 15.0±2.0) to starting gender-affirming hormones (mean age 16.4±2.3) in transmales (mean [±SD]: GnRH analogue: 0.25 (0.03) g/cm3, gender-affirming hormones: 0.24 (0.02) g/cm3 (NS);	This study was appraised using the Newcastle-Ottawa quality assessment checklist for cohort studies. **Domain 1: Selection** 1. somewhat representative of children and adolescents who have gender dysphoria 2. not applicable 3. via routine clinical records 4. no **Domain 2: Comparability** 1. no control group **Domain 3: Outcome** 1. via routine clinical records 2. yes 3. follow-up rate variable across timepoints and no description of those lost **Overall quality is assessed as poor**.

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
1998 to 2012		(range, 0.25 to 5.2 years).	z-score GnRH analogue: 0.28 (0.90), gender-affirming hormones: −0.50 (0.81) (p=0.004) **Lumbar spine bone mineral density (BMD)[1]** Change from starting GnRH analogue (mean age 14.9±1.9) to starting gender-affirming hormones (mean age 16.6±1.4) in transfemales (mean [±SD]): GnRH analogue: 0.84 (0.13) g/m2, gender-affirming hormones: 0.84 (0.11) g/m2 (NS); z-score GnRH analogue: −0.77 (0.89), gender-affirming hormones: −1.01 (0.98) (NS) Change from starting GnRH analogue (mean age 15.0±2.0) to starting gender-affirming hormones (mean age 16.4±2.3) in transmales (mean [±SD]): GnRH analogue: 0.95 (0.12) g/m2, gender-affirming hormones: 0.91 (0.10) g/m2 (p=0.006); z-score GnRH analogue: 0.17 (1.18), gender-affirming hormones: −0.72 (0.99) (p<0.001) ***Bone density; femoral*** **Femoral area BMAD[1]** Change from starting GnRH analogue (mean age 14.9±1.9) to starting gender-affirming hormones (mean age 16.6±1.4) in transfemales (mean [±SD]), GnRH analogue: 0.28 (0.04) g/cm3, gender-affirming hormones: 0.26 (0.04) g/cm3 (NS); z-score GnRH analogue: −0.93 (1.22), gender-affirming hormones: −1.57 (1.74) (p=NS) Change from starting GnRH analogue	Other comments: Within person comparison. Small numbers of participants in each subgroup. No concomitant treatments or comorbidities were reported. Source of funding: None disclosed

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
			(mean age 15.0±2.0) to starting gender-affirming hormones (mean age 16.4±2.3) in transmales (mean [±SD]), GnRH analogue: 0.32 (0.04) g/cm3, gender-affirming hormones: 0.31 (0.04) (NS); z-score GnRH analogue: 0.01 (0.70), gender-affirming hormones: −0.28 (0.74) (NS) **Femoral area BMD[1]** Change from starting GnRH analogue (mean age 14.9±1.9) to starting gender-affirming hormones (mean age 16.6±1.4) in transfemales (mean [±SD]), GnRH analogue: 0.88 (0.12) g/m2, gender-affirming hormones: 0.87 (0.08) (NS); z-score GnRH analogue: −0.66 (0.77), gender-affirming hormones: −0.95 (0.63) (NS) Change from starting GnRH analogue (mean age 15.0±2.0) to starting gender-affirming hormones (mean age 16.4±2.3) in transmales (mean [±SD]), GnRH analogue: 0.92 (0.10) g/m2, gender-affirming hormones: 0.88 (0.09) (p=0.005); z-score GnRH analogue: 0.36 (0.88), gender-affirming hormones: −0.35 (0.79) (p=0.001)	

[1] BMD and BMAD of the lumbar spine and femoral region (nondominant side) measured by DXA scans at start of GnRH analogues, (n=32), start of gender-affirming hormones (n=34), and at 22 years (n=34).

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Schagen SEE, Cohen-Kettenis PT, Delemarre-van de Waal HA et al. (2016)	Adolescents with gender dysphoria (n=116), median age (range) 13.6 years (11.6 to 17.9) in transfemales and 14.2 years (11.1 to	GnRH analogue monotherapy (triptorelin pamoate 3.75 mg at 0, 2 and 4	**Critical outcomes** No critical outcomes assessed. **Important outcomes**	This study was appraised using the Newcastle-Ottawa quality assessment checklist for cohort studies.

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Efficacy and Safety of Gonadotropin-Releasing Hormone Agonist Treatment to Suppress Puberty in Gender Dysphoric Adolescents. The journal of sexual medicine 13(7): 1125-32 Netherlands Prospective longitudinal study To describe the changes in Tanner stage, testicular volume, gonadotropins, and sex steroids during GnRH analogues of adolescents with gender dysphoria to evaluate the efficacy. To report on liver enzymes, renal function and changes in body composition. 1998 to 2009	18.6) in transmales during first year of GnRH analogues. Participants were included if they met DSM-IV-TR criteria for gender dysphoria, had lifelong extreme gender dysphoria, were psychologically stable and were living in a supportive environment. No concomitant treatments were reported.	weeks followed by injections every 4 weeks, route of administration not described) for at least 3 months.	***Other safety outcomes: liver function*** Glutamyl transferase was not elevated at baseline or during treatment in any subject. Mild elevations of aspartate aminotransferase (AST) and alanine aminotransferase (ALT) above the reference range were present at baseline but were not more prevalent during treatment than at baseline. Glutamyl transferase, AST, and ALT levels did not significantly change from baseline to 12 months of treatment. No values or statistical analyses were reported. ***Other safety outcomes: kidney function*** **Change in serum creatinine between 0 and 1 year** Transfemales (mean [±SD]): 70 (12) micromol/l at baseline, 66 (13) micromol/l at 1 year (p=0.20) Transmales (mean [±SD]): 73 (8) micromol/l at baseline, 68 (13) micromol/l at 1 year (p=0.01)	**Domain 1: Selection** 1. somewhat representative of children and adolescents who have gender dysphoria 2. not applicable 3. via routine clinical records 4. no **Domain 2: Comparability** 1. no control group **Domain 3: Outcome** 1. via routine clinical records 2. yes 3. no statement **Overall quality is assessed as poor**. Other comments: Within person comparison. No concomitant treatments or comorbidities were reported. Source of funding: Ferring pharmaceuticals (triptorelin manufacturer)

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Staphorsius A, Baudewijntje P, Kreukels P, et al. (2015) Puberty suppression and executive functioning: an fMRI-study	The inclusion criteria were diagnosed with Gender Identity Disorder according to the DSM-IV-TR and at least 12 years old and Tanner stage of at least B2 or G2 to G3 with	**Intervention** GnRH analogues (triptorelin pamoate 3.75 mg every 4 weeks	**Critical Outcomes** No critical outcomes assessed. **Important outcomes** ***Psychosocial impact***	This study was appraised using the Newcastle-Ottawa tool for cohort studies. **Domain 1: Selection domain**

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
in adolescents with gender dysphoria. Psychoneuroendocrinology 565:190-9. Netherlands Cross-sectional (single time point) assessment single centre study	measurable oestradiol and testosterone levels in girls and boys, respectively. For all group's exclusion criteria were an insufficient command of the Dutch language (how assessed not reported), unadjusted endocrine disorders, neurological or psychiatric disorders that could lead to deviant test results (details not reported) use of psychotropic medication, and contraindications for an MRI scan. Additionally, adolescents receiving puberty delaying medication or any form of hormones besides oral contraceptives were excluded as controls. The sample size was 85 of whom 41 were adolescents (the numbers are discrepant with the number for whom outcomes are reported n=40) with gender dysphoria (20 of whom were being treated with GnRH analogues); 24 girls and 21 boys without gender dysphoria acted as controls (not further reported here). Details of the sampling frame are not reported. The ages at which GnRH analogues were started was not reported. The mean duration of treatment was 1.6 years (SD 1.0) Mean (±SD) Tanner stage for each group was reported: • Transfemales 3.9 [±1.1] • Transfemales on GnRH analogues 4.1 [±1.0]	subcutaneously or intramuscularly). **Comparison** The comparison was between adolescents with gender dysphoria receiving GnRH analogues and those without GnRH analogues.	The Child Behaviour Checklist (CBCL) was used to assess psychosocial impact. The CBCL was administered once during the study. The reported outcomes for each group were (n, mean [±SD]): • Transfemales (all, n=18) 57.8 [±9.2] • Transfemales on GnRH analogues (n=8) 57.4 [±9.8] • Transfemales without GnRH analogues (n=10) 58.2 [±9.3] • Transmales (all, n=22) 60.4 [±10.2] • Transmales on GnRH analogues (n=12) 57.5 [±9.4] • Transmales without GnRH analogues (n=10) 63.9 [±10.5] The analysis of the CBCL data is not discussed, and statistical analysis is unclear. ***Cognitive development or functioning*** **IQ[1]** • Transfemales (mean [±SD]) on GnRH analogues: 94.0 (10.3) • Transfemales (mean [±SD]) without GnRH analogues: 109.4 (21.2) • Transmales (mean [±SD]) on GnRH analogues: 95.8 (15.6) • Transmales (mean [±SD]) without GnRH analogues: 98.5 (15.9) **Reaction time[2]** • Transfemales (mean [±SD]) on GnRH analogues: 10.9 (4.1) • Transfemales (mean [±SD]) without GnRH analogues: 9.9 (3.1)	1. somewhat representative of children and adolescents who have gender dysphoria 2. drawn from the same community as the exposed cohort 3. via routine clinical records 4. no **Domain 2: Comparability** 1. study controls for age and diagnosis **Domain 3: Outcome** 1. via clinical assessment 2. yes 3. unclear **Overall quality is assessed as poor.** Other comments: Physical and psychological comorbidity was not reported, concomitant use of other medicines was not reported. Source of funding: This work was supported by an educational grant from the pharmaceutical firm Ferring BV, and by a VICI grant (453-08-003) from the Dutch Science Foundation. The authors state that funding sources did not play a role in any component of this study.

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
	• Transfemales without GnRH analogues 3.8 [±1.1] • Transmales 4.5 [±0.9] • Transmales on GnRH analogues 4.1 [±1.1] Transmales without GnRH analogues 4.9 [±0.3]		• Transmales (mean [±SD]) on GnRH analogues: 9.9 (3.1) • Transmales (mean [±SD]) without GnRH analogues: 10.0 (2.0) **Accuracy[3]** • Transfemales (mean [±SD]) on GnRH analogues: 73.9 (9.1) • Transfemales (mean [±SD]) without GnRH analogues: 83.4 (9.5) • Transmales (mean [±SD]) on GnRH analogues: 85.7 (10.5) • Transmales (mean [±SD]) without GnRH analogues: 88.8 (9.7)	

[1] Estimated with 4 subscales (arithmetic, vocabulary, picture arrangement, and block design) of the Wechsler Intelligence Scale for Children, third edition (WISC-III®, Wechsler 1991) or the Wechsler Adult Intelligence Scale, third edition (WAIS-III®, Wechsler 1997), depending on the participant's age.
[2] Reaction time in seconds in the Tower of London task
[3] Percentage of correct trials in the Tower of London task

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Vlot, Mariska C, Klink, Daniel T, den Heijer, Martin et al. (2017) Effect of pubertal suppression and cross-sex hormone therapy on bone turnover markers and bone mineral apparent density (BMAD) in transgender adolescents. Bone 95: 11-19 Netherlands Retrospective observational data analysis study	Adolescents with gender dysphoria, n=70. Median age (range) 15.1 years (11.7 to 18.6) for transmales and 13.5 years (11.5 to 18.3) for transfemales at start of GnRH analogues. Participants were included if they had a diagnosis of gender dysphoria according to DSM-IV-TR criteria who were treated with GnRH analogues and then gender-affirming hormones. No concomitant treatments were reported. The study categorised	GnRH analogues (triptorelin pamoate 3.75 mg every 4 weeks subcutaneously).	**Critical outcomes** No critical outcomes reported **Important outcomes** ***Bone density: lumbar*** **Lumbar spine bone mineral apparent density (BMAD)** Change from starting GnRH analogue to starting gender-affirming hormones in transfemales (bone age of <15 years; median [range]), GnRH analogue: 0.21 (0.17 to 0.25) g/cm3, gender-affirming hormones: 0.20 (0.18 to 0.24) g/cm3 (NS); z-score GnRH analogue: −0.20 (−1.82 to 1.18), gender-affirming hormones: −1.52 (−2.36 to 0.42) (p=0.001)	This study was appraised using the Newcastle-Ottawa quality assessment checklist for cohort studies. **Domain 1: Selection** 1. Somewhat representative of children and adolescents who have gender dysphoria 2. Not applicable 3. Via routine clinical records 4. No **Domain 2: Comparability** 1. No control group **Domain 3: Outcome** 1. Via routine clinical records 2. Yes

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
To investigate the course of 3 bone turnover markers in relation to bonemineral density, in adolescents with gender dysphoria during GnRH analogue and gender-affirming hormones. 2001 to 2011	participants into a young and old pubertal group, based on their bone age. The young transmales had a bone age of <14 years and the old transmales had a bone age of ≥14 years. The young transfemales group had a bone age of <15 years and the old transfemales group ≥15 years.		Change from starting GnRH analogue to starting gender-affirming hormones in transfemales (bone age of ≥15; median [range]), GnRH analogue: 0.22 (0.18 to 0.25) g/cm3, gender-affirming hormones: 0.22 (0.19 to 0.24) g/cm3 (NS); z-score GnRH analogue: −1.18 (−1.78 to 1.09), gender-affirming hormones: −1.15 (−2.21 to 0.08) (p≤0.1) Change from starting GnRH analogue to starting gender-affirming hormones in transmales (bone age of <15 years; median [range]), GnRH analogue: 0.23 (0.20 to 0.29) g/cm3, gender-affirming hormones: 0.23 (0.19 to 0.28) g/cm3 (NS); z-score GnRH analogue: −0.05 (−0.78 to 2.94), gender-affirming hormones: −0.84 (−2.20 to 0.87) (p=0.003) Change from starting GnRH analogue to starting gender-affirming hormones in transmales (bone age of ≥15; median [range]), GnRH analogue: 0.26 (0.21 to 0.29) g/cm3, gender-affirming hormones: 0.24 (0.20 to 0.28) g/cm3 (p≤0.01); z-score GnRH analogue: 0.27 (−1.60 to 1.80), gender-affirming hormones: −0.29 (−2.28 to 0.90) (p≤ 0.0001) ***Bone density; femoral*** **Femoral neck BMAD** Change from starting GnRH analogue to starting gender-affirming hormones in transfemales (bone age of <15 years; median [range]), GnRH analogue: 0.29 (0.20 to 0.33) g/cm3, gender-affirming hormones: 0.27 (0.20 to 0.33) g/cm3 (p≤0.1); z-score GnRH analogue: −0.71 (−3.35 to	3. Follow-up rate variable across outcomes and no description of those lost **Overall quality is assessed as poor**. Other comments: Within person comparison. No concomitant treatments were reported. Source of funding: grant from Abbott diagnostics

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
			0.37), gender-affirming hormones: −1.32 (−3.39 to 0.21) (p≤0.1) Change from starting GnRH analogue to starting gender-affirming hormones in transfemales (bone age of ≥15; median [range]), GnRH analogue: 0.30 (0.26 to 0.36) g/cm3, gender-affirming hormones: 0.30 (0.26 to 0.34) g/cm3 (NS); z-score GnRH analogue: −0.44 (−1.37 to 0.93), gender-affirming hormones: −0.36 (−1.50 to 0.46) (NS) Change from starting GnRH analogue to starting gender-affirming hormones in transmales (bone age of <15 years; median [range]), GnRH analogue: 0.31 (0.26 to 0.36) g/cm3, gender-affirming hormones: 0.30 (0.22 to 0.35) g/cm3 (NS); z-score GnRH analogue: −0.01 (−1.30 to 0.91), gender-affirming hormones: −0.37 (−2.28 to 0.47) (NS) Change from starting GnRH analogue to starting gender-affirming hormones in transmales (bone age of ≥15; median [range]), GnRH analogue: 0.33 (0.25 to 0.39) g/cm3, gender-affirming hormones: 0.30 (0.23 to 0.41) g/cm3 (p≤0.01); z-score GnRH analogue: 0.27 (−1.39 to 1.32), gender-affirming hormones: −0.27 (−1.91 to 1.29) (p=0.002)	

Appendix F Quality appraisal checklists

Newcastle-Ottawa tool for cohort studies

Question	
Domain: Selection	
1. Representativeness of the exposed cohort	Truly representative of the average [describe] in the community Somewhat representative of the average [describe] in the community Selected group of users e.g. nurses, volunteers No description of the derivation of the cohort
2. Selection of the non-exposed cohort	Drawn from the same community as the exposed cohort Drawn from a different source No description of the derivation of the non-exposed cohort
3. Ascertainment of exposure	Secure record (e.g. surgical records) Structured interview Written self-report No description
4. Demonstration that outcome of interest was not present at start of study	Yes / No
Domain: Comparability	
1. Comparability of cohorts on the basis of the design or analysis	Study controls for [select most important factor] Study controls for any additional factor [this criteria could be modified to indicate specific control for a second important factor]
Domain: Outcome	
1. Assessment of outcome	Independent blind assessment Record linkage Self-report No description
2. Was follow-up long enough for outcomes to occur	Yes [select and adequate follow up period for outcome of interest] No
3. Adequacy of follow up of cohorts	Complete follow up (all subjects accounted for) Subjects lost to follow up unlikely to introduce bias (small number lost to follow up [select an adequate %] follow up or description provided of those lost) Follow up rate [select an adequate %] and no description of those lost No statement

Appendix G Grade profiles

Table 2: Question 1. For children and adolescents with gender dysphoria, what is the clinical effectiveness of treatment with GnRH analogues compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention? – gender dysphoria

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Impact on gender dysphoria									
Mean±SD Utrecht Gender Dysphoria Scale[1] (version(s) not reported), time point at baseline (before GnRH analogues) versus follow-up (before gender-affirming hormones, higher scores indicate more gender dysphoria)									
1 cohort study de Vries et al 2011	Serious limitations[2]	No serious indirectness	Not applicable	Not calculable	N=41	None	Baseline: 53.20±7.91 GnRH analogue: 53.9±17.42 *P*=0.333	Critical	VERY LOW

Abbreviations: GnRH, gonadotrophin releasing hormone; *P*, P-value; SD, Standard deviation.

1 The UGDS is a validated screening tool for both adolescents and adults to assess gender dysphoria. It consists of 12 items, to be answered on a 1- to 5-point scale, resulting in a sum score between 12 and 60. The higher the UGDS score the greater the gender dysphoria.
2 Downgraded 1 level - the cohort study by de Vries et al. (2011) was assessed as at high risk of bias (poor quality overall; lack of blinding and no control group).

Table 3: Question 1. For children and adolescents with gender dysphoria, what is the clinical effectiveness of treatment with GnRH analogues compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention? – mental health

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Impact on mental health									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Mean±SD Beck Depression Inventory-II, time point at baseline (before GnRH analogues) versus follow-up (just before gender-affirming hormones). (Lower scores indicate benefit)									
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=41	None	Baseline: 8.31±7.12 GnRH analogue: 4.95±6.72 *P*=0.004	Critical	VERY LOW
Mean±SD Trait Anger (TPI), time point at baseline (before GnRH analogues) versus follow-up (just before gender-affirming hormones, lower scores indicate benefit)									
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=41	None	Baseline: 18.29±5.54 GnRH analogue: 17.88±5.24 *P*=0.503	Critical	VERY LOW
Mean±SD Trait Anxiety (STAI), time point at baseline (before GnRH analogues) versus follow-up (just before gender-affirming hormones, lower scores indicate benefit)									
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=41	None	Baseline: 39.43±10.07 GnRH analogue: 37.95±9.38 *P*=0.276	Critical	VERY LOW

Abbreviations: GnRH, gonadotrophin releasing hormone; *P*, P-value; SD, Standard deviation.

1 Downgraded 1 level - the cohort study by de Vries et al. (2011) was assessed as at high risk of bias (poor quality overall; lack of blinding and no control group).

Table 4: Question 1. For children and adolescents with gender dysphoria, what is the clinical effectiveness of treatment with GnRH analogues compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention? – body image

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Impact on body image									
Mean±SD Body Image Scale (primary sexual characteristics), time point at baseline (before GnRH analogues) versus follow-up (just before gender-affirming hormones, lower scores indicate benefit)									
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=57	None	Baseline: 4.10±0.56 GnRH analogue: 3.98±0.71 *P*=0.145	Important	VERY LOW
Mean±SD Body Image Scale (secondary sexual characteristics), time point at baseline (before GnRH analogues) versus follow-up (just before gender-affirming hormones, lower scores indicate benefit)									
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=57	None	Baseline: 2.74±0.65 GnRH analogue: 2.82±0.68 *P*=0.569	Important	VERY LOW
Mean±SD Body Image Scale (neutral characteristics), time point at baseline (before GnRH analogues) versus follow-up (just before gender-affirming hormones, lower scores indicate benefit)									
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=57	None	Baseline: 2.41±0.63 GnRH analogue: 2.47±0.56 *P*=0.620	Important	VERY LOW

Abbreviations: GnRH, gonadotrophin releasing hormone; *P*, P-value; SD, Standard deviation.

1 Downgraded 1 level - the cohort study by de Vries et al. (2011) was assessed as at high risk of bias (poor quality overall; lack of blinding and no control group).

Table 5: Question 1. For children and adolescents with gender dysphoria, what is the clinical effectiveness of treatment with GnRH analogues compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention? – psychosocial impact

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Psychosocial impact									
Mean [±SD] Children's Global Assessment Scale score, at baseline, higher scores indicate benefit)									
1 cohort study Costa et al 2015	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	n=101 58.72 [±11.38]	n=100 56.63 [±13.14]	*P*=0.23	Important	VERY LOW
Mean [±SD] Children's Global Assessment Scale score, at 6 months[2] (higher scores indicate benefit).									
1 cohort study Costa et al 2015	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	n=101 60.89 [±12.17]	n=100 60.29 [±12.81]	*P*=0.73	Important	VERY LOW
Mean [±SD] Children's Global Assessment Scale score, at 12 months[3] (higher scores indicate benefit).									
1 cohort study Costa et al 2015	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	n=60 64.70 [±13.34]	n=61 62.97 [±14.10]	*P*=0.49	Important	VERY LOW
Mean [±SD] Children's Global Assessment Scale score, at 18 months[4] (higher scores indicate benefit).									
1 cohort study Costa et al 2015	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	n=35 67.40 [±13.93]	n=36 62.53 [±13.54]	*P*=0.14	Important	VERY LOW
Mean [±SD] Children's Global Assessment Scale score, participants at 6 months compared to baseline (higher scores indicate benefit).									
1 cohort study Costa et al 2015	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=101 N=101	None	Baseline: 58.72±11.38 6 months: 60.89±12.17 *P*=0.19	Important	VERY LOW
Mean [±SD] Children's Global Assessment Scale score, participants at 12 months compared to baseline (higher scores indicate benefit).									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
1 cohort study Costa et al 2015	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=101 N=60	None	Baseline: 58.72±11.38 12 months: 64.70±13.34 *P*=0.003	Important	VERY LOW
Mean [±SD] Children's Global Assessment Scale score, participants at 18 months compared to baseline (higher scores indicate benefit).									
1 cohort study Costa et al 2015	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=101 N=35	None	Baseline: 58.72±11.38 18 months: 67.40±13.93 *P*<0.001	Important	VERY LOW
Mean [±SD] Children's Global Assessment Scale score, participants at 12 months compared to 6 months (higher scores indicate benefit).									
1 cohort study Costa et al 2015	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=101 N=60	None	6 months: 60.89±12.17 12 months: 64.70±13.34 *P*=0.07	Important	VERY LOW
Mean [±SD] Children's Global Assessment Scale score, participants at 18 months compared to 6 months (higher scores indicate benefit).									
1 cohort study Costa et al 2015	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=101 N=35	None	6 months: 60.89±12.17 18 months: 67.40±13.93 *P*<0.001	Important	VERY LOW
Mean [±SD] Children's Global Assessment Scale score, participants at 18 months compared to 12 months (higher scores indicate benefit).									
1 cohort study Costa et al 2015	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=60 N=35	None	12 months: 64.70±13.34 18 months: 67.40±13.93 *P*=0.35	Important	VERY LOW
Mean [±SD] Children's Global Assessment Scale score, in all participants (including those not treated with GnRH analogues) at 6 months[2] compared to baseline (higher scores indicate benefit).									
1 cohort study Costa et al 2015	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=201	None	Baseline: 57.73±12.27 6 months: 60.68±12.47 *P*<0.001	Important	VERY LOW
Mean [±SD] Children's Global Assessment Scale score, in all participants (including those not treated with GnRH analogues) at 12 months[3] compared to baseline (higher scores indicate benefit).									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
1 cohort study Costa et al 2015	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=201 N=121	None	Baseline: 57.73±12.27 12 months: 63.31±14.41 *P*<0.001	Important	VERY LOW
Mean±SD Children's Global Assessment Scale score, in all participants (including those not treated with GnRH analogues) at 18 months[4] compared to baseline (higher scores indicate benefit).									
1 cohort study Costa et al 2015	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=201 N=71	None	Baseline: 57.73±12.27 18 months: 64.93±13.85 *P*<0.001	Important	VERY LOW
Mean±SD Children's Global Assessment Scale score, in all participants (including those not treated with GnRH analogues) at 12 months compared to 6 months (higher scores indicate benefit).									
1 cohort study Costa et al 2015	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=201 N=121	None	6 months: 60.68±12.47 12 months: 63.31±14.41 *P*<0.08	Important	VERY LOW
Mean±SD Children's Global Assessment Scale score, in all participants (including those not treated with GnRH analogues) at 18 months compared to 6 months (higher scores indicate benefit).									
1 cohort study Costa et al 2015	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=201 N=71	None	6 months: 60.68±12.47 18 months: 64.93±13.85 *P*<0.02	Important	VERY LOW
Mean±SD Children's Global Assessment Scale score, in all participants (including those not treated with GnRH analogues) at 18 months compared to 12 months (higher scores indicate benefit).									
1 cohort study Costa et al 2015	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=121 N=71	None	12 months: 63.31±14.41 18 months: 64.93±13.85 *P*<0.45	Important	VERY LOW
Mean±SD Children's Global Assessment Scale score, time point at baseline (before GnRH analogues) versus follow-up (just before gender-affirming hormones, higher scores indicate benefit).									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
1 cohort study de Vries et al 2011	Serious limitations[5]	No serious indirectness	Not applicable	Not calculable	N=41	None	Baseline: 70.24±10.12 GnRH analogue: 73.90±9.63 *P*=0.005	Important	VERY LOW
Mean±SD Child Behaviour Checklist (total T) score, time point at baseline (before GnRH analogues) versus follow-up (just before gender-affirming hormones, lower scores indicate benefit).									
1 cohort study de Vries et al 2011	Serious limitations[5]	No serious indirectness	Not applicable	Not calculable	N=54	None	Baseline: 60.70±12.76 GnRH analogue: 54.46±11.23 *P*<0.001	Important	VERY LOW
Mean±SD Child Behaviour Checklist (internalising T) score, time point at baseline (before GnRH analogues) versus follow-up (just before gender-affirming hormones, lower scores indicate benefit).									
1 cohort study de Vries et al 2011	Serious limitations[5]	No serious indirectness	Not applicable	Not calculable	N=54	None	Baseline: 61.00±12.21 GnRH analogue: 52.1±9.81 *P*<0.001	Important	VERY LOW
Mean±SD Child Behaviour Checklist (externalising T) score, time point at baseline (before GnRH analogues) versus follow-up (just before gender-affirming hormones, lower scores indicate benefit).									
1 cohort study de Vries et al 2011	Serious limitations[5]	No serious indirectness	Not applicable	Not calculable	N=54	None	Baseline: 58.04±12.99 GnRH analogue: 53.81±11.86 *P*=0.001	Important	VERY LOW
Proportion of adolescents scoring in the clinical range Child Behaviour Checklist total problem scale, time point at baseline (before GnRH analogues) versus follow-up (just before gender-affirming hormones, lower scores indicate benefit).									
1 cohort study de Vries et al 2011	Serious limitations[5]	No serious indirectness	Not applicable	Not calculable	N=54	None	Baseline: 44.4% GnRH analogue: 22,2% *P*=0.001	Important	VERY LOW
Mean±SD Youth Self-Report (total T) score, time point at baseline (before GnRH analogues) versus follow-up (just before gender-affirming hormone, lower scores indicate benefit).									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
1 cohort study de Vries et al 2011	Serious limitations[5]	No serious indirectness	Not applicable	Not calculable	N=54	None	Baseline: 55.46±11.56 GnRH analogue: 50.00±10.56 *P*<0.001	Important	VERY LOW
Mean±SD Youth Self-Report (internalising T) score, time point at baseline (before GnRH analogues) versus follow-up (just before gender-affirming hormones, lower scores indicate benefit).									
1 cohort study de Vries et al 2011	Serious limitations[5]	No serious indirectness	Not applicable	Not calculable	N=54	None	Baseline: 56.04±12.49 GnRH analogue: 49.78±11.63 *P*<0.001	Important	VERY LOW
Mean±SD Youth Self-Report (externalising T) score, time point at baseline (before GnRH analogues) versus follow-up (just before gender-affirming hormones, lower scores indicate benefit).									
1 cohort study de Vries et al 2011	Serious limitations[5]	No serious indirectness	Not applicable	Not calculable	N=54	None	Baseline: 53.30±11.87 GnRH analogue: 49.98±9.35 *P*=0.009	Important	VERY LOW
Proportion of adolescents scoring in the clinical range Youth Self-Report (internalising T) score, time point at baseline (before GnRH analogues) versus follow-up (just before gender-affirming hormones, lower scores indicate benefit).									
1 cohort study de Vries et al 2011	Serious limitations[5]	No serious indirectness	Not applicable	Not calculable	N=54	None	Baseline: 29.6% GnRH analogue: 11.1% *P*=0.017	Important	VERY LOW
Mean±SD Child Behaviour Checklist score, transfemales (lower scores indicate benefit									
1 cross-sectional study Staphorsius et al 2015	Serious limitations[6]	No serious indirectness	Not applicable	Not calculable	N=8	N=10	GnRH analogue: 57.4 [±9.8] No GnRH analogue: 58.2 [±9.3]	Important	VERY LOW
Mean±SD Child Behaviour Checklist score, transmales (lower scores indicate benefit)									
1 cross-sectional study	Serious limitations[6]	No serious indirectness	Not applicable	Not calculable	N=12	N=10	GnRH analogues: 57.5 [±9.4] No GnRH analogue: 63.9 [±10.5]	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Staphorsius et al 2015									

Abbreviations: GnRH, gonadotrophin releasing hormone; *P*, P-value; SD, Standard deviation.

1 Downgraded 1 level - the cohort study by Costa et al. (2015) was assessed as at high risk of bias (poor quality overall; lack of blinding and no control group).
2 6 months from baseline (after 6 months of psychological support – both groups).
3 12 months from baseline (delayed eligible gender dysphoria [GD] adolescents, after 12 months of psychological support; immediately eligible GD adolescents, after 12 months of psychological support + 6 months of puberty suppression).
4 18 months from baseline (delayed eligible gender dysphoria [GD] adolescents, after 12 months of psychological support; immediately eligible GD adolescents, after 12 months of psychological support + 6 months of puberty suppression).
5 Downgraded 1 level - the cohort study by de Vries et al. (2011) was assessed as at high risk of bias (poor quality overall; lack of blinding and no control group).
6 Downgraded 1 level - the cohort study by Staphorsius et al. (2015) was assessed as at high risk of bias (poor quality overall; lack of blinding and no randomisation).

Table 6: Question 1. For children and adolescents with gender dysphoria, what is the clinical effectiveness of treatment with GnRH analogues compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention? – engagement with healthcare services

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Engagement with healthcare services									
Number (proportion) failing to engage with health care services (did not attend clinic), at (up to) 9 years follow-up									
1 cohort study Brik et al 2018	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	9/214 (4.2%)	None	9 adolescents out of 214 failed to attend clinic and were excluded from the study (4.2%)	Important	VERY LOW
Loss to follow-up									
1 cohort study	Serious limitations[2]	No serious indirectness	Not applicable		201	None	The sample size at baseline and 6 months was 201, which dropped by 39.8% to 121 after	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Costa et al 2015				Not calculable			12 months and by 64.7% to 71 at 18 months follow-up. No explanation of the reasons for loss to follow-up are reported.		

Abbreviations: GnRH, gonadotrophin releasing hormone.

1 Downgraded 1 level - the cohort study by Brik et al. (2018) was assessed as at high risk of bias (poor quality overall; lack of blinding and no control group).
2 Downgraded 1 level - the cohort study by Costa et al. (2015) was assessed as at high risk of bias (poor quality overall; lack of blinding and no control group).

Table 7: Question 1. For children and adolescents with gender dysphoria, what is the clinical effectiveness of treatment with GnRH analogues compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention? – stopping treatment

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Stopping treatment									
Number (proportion) stopping GnRH analogues, at (up to) 9 years follow-up									
1 cohort study Brik et al 2018	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	9/143 (6.2%)	None	9/143 adolescents stopped GnRH analogues (6.2%)[2]	Important	VERY LOW
Number (proportion) stopping from GnRH analogues, at (up to) 13 years follow-up									
1 cohort study Khatchadourian et al 2014	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	11/27 (42%)	None	11/26 stopped GnRH analogues (42%)[4]	Important	VERY LOW
Number (proportion) stopping GnRH analogues but who wished to continue endocrine treatment, at (up to) 9 years follow-up									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
1 cohort study Brik et al 2018	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	4/143 (2.8%)	None	4/143 adolescents stopped GnRH analogues but wished to continue treatment (2.8%)	Important	VERY LOW
Number (proportion) stopping GnRH analogues who no longer wished gender-affirming treatment, at (up to) 9 years follow-up									
1 cohort study Brik et al 2018	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	5/143 (3.5%)	None	5/143 adolescents stopped GnRH analogues and no longer wished to continue gender-affirming treatment (3.5%)	Important	VERY LOW

Abbreviations: GnRH, gonadotrophin releasing hormone.

1 Downgraded 1 level - the cohort study by Brik et al. (2018) was assessed as at high risk of bias (poor quality overall; lack of blinding and no control group).
2 Median duration of 0.8 years (range 0.1 to 3.0). Five adolescents stopped treatment because they no longer wished to receive gender-affirming treatment for various reasons. In 4 adolescents (all transmales), although they wanted to continue treatments for gender dysphoria, GnRH analogues were stopped mainly because of adverse effects (such as mood and emotional lability).
3 Downgraded 1 level - the cohort study by Khatchadourian et al. (2014) was assessed as at high risk of bias (poor quality overall; lack of blinding, no control group and high number of participants lost to follow-up).
4 Because of transitioning to gender-affirming hormones or gender-affirming surgery, adverse effects (such as mood and emotional lability) or no longer wishing to pursue transition.

Table 8. Question 2. For children and adolescents with gender dysphoria, what is the short-term and long-term safety of GnRH analogues compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention? – bone density

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Bone density: change in lumbar BMAD									
Change in lumbar spine BMAD from baseline to 1 year in transfemales									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
1 observational study Joseph et al. (2019)	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=31	None	Mean (SD), g/cm^3 Baseline: 0.235 (0.030) 1 year: 0.233 (0.029) p=0.459 z-score Baseline: 0.859 (0.154) 1 year: −0.228 (1.027) p=0.000	IMPORTANT	VERY LOW
Change in lumbar spine BMAD from baseline to 1 year in transmales									
1 observational study Joseph et al. (2019)	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=39	None	Mean (SD), g/cm^3 Baseline: 0.196 (0.035) 1 year: 0.201 (0.033) p=0.074 z-score Baseline: −0.186 (1.230) 1 year: −0.541 (1.396) p=0.006	IMPORTANT	VERY LOW
Change in lumbar spine BMAD from baseline to 2 years in transfemales									
1 observational study Joseph et al. (2019)	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=10	None	Mean (SD), g/cm^3 Baseline: 0.240 (0.027) 2 years: 0.240 (0.030) p=0.865 z-score Baseline: 0.486 (0.809) 2 years: −0.279 (0.930) p=0.000	IMPORTANT	VERY LOW
Change in lumbar spine BMAD from baseline to 2 years in transmales									
1 observational study	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=21	None	Mean (SD), g/cm^3 Baseline: 0.195 (0.058) 2 years: 0.198 (0.055) p=0.433	IMPORTANT	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Joseph et al. (2019)							z-score Baseline: −0.361 (1.439) 2 years: −0.913 (1.318) p=0.001		
Change in lumbar BMAD from starting GnRH analogue (mean age 14.9±1.9) to starting gender-affirming hormones (mean age 16.6±1.4) in transfemales									
1 observational study Klink et al. 2015	Serious limitations[2]	No serious indirectness	Not applicable	Not calculable	N=11 N=12	None	Mean (SD), g/cm^3 GnRH analogue: 0.22 (0.03) Gender-affirming hormones: 0.22 (0.02) NS z-score GnRH analogue: −0.44 (1.10) Gender-affirming hormones: −0.90 (0.80) p-value: NS	IMPORTANT	VERY LOW
Change in lumbar BMAD from starting GnRH analogue (mean age 15.0±2.0) to starting gender-affirming hormones (mean age 16.4±2.3) in transmales									
1 observational study Klink et al. 2015	Serious limitations[2]	No serious indirectness	Not applicable	Not calculable	N=18	None	Mean (SD), g/cm^3 GnRH analogue: 0.25 (0.03) Gender-affirming hormones: 0.24 (0.02) NS z-score GnRH analogue: 0.28 (0.90) Gender-affirming hormones: −0.50 (0.81) p-value: 0.004	IMPORTANT	VERY LOW
Change in lumbar BMAD from starting GnRH analogue to starting gender-affirming hormones in transfemales (bone age of <15 years)									
1 observational study Vlot et al. 2017	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=15	None	Median (range), g/cm^3 GnRH analogue: 0.21 (0.17 to 0.25) Gender-affirming hormones: 0.20 (0.18 to 0.24)	IMPORTANT	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
							NS z-score GnRH analogue: −0.20 (−1.82 to 1.18) Gender-affirming hormones: −1.52 (−2.36 to 0.42) p-value: <0.01		
Change in lumbar BMAD from starting GnRH analogue to starting gender-affirming hormones in transfemales (bone age of ≥15)									
1 observational study Vlot et al. 2017	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=5	None	Median (range), g/cm^3 GnRH analogue: 0.22 (0.18 to 0.25) Gender-affirming hormones: 0.22 (0.19 to 0.24) NS z-score GnRH analogue: −1.18 (−1.78 to 1.09) Gender-affirming hormones: −1.15 (−2.21 to 0.08) p-value: p≤0.1	IMPORTANT	VERY LOW
Change in lumbar BMAD from starting GnRH analogue to starting gender-affirming hormones in transmales (bone age of <14 years)									
1 observational study Vlot et al. 2017	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=11	None	Median (range), g/cm^3 GnRH analogue: 0.23 (0.20 to 0.29) Gender-affirming hormones: 0.23 (0.19 to 0.28) NS z-score GnRH analogue: −0.05 (−0.78 to 2.94) Gender-affirming hormones: −0.84 (−2.20 to 0.87) p-value: ≤0.01	IMPORTANT	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Change in lumbar BMAD from starting GnRH analogue to starting gender-affirming hormones in transmales (bone age of ≥14)									
1 observational study Vlot et al. 2017	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=23	None	Median (range), g/cm3 GnRH analogue: 0.26 (0.21 to 0.29) Gender-affirming hormones: 0.24 (0.20 to 0.28) p≤0.01 z-score GnRH analogue: 0.27 (−1.60 to 1.80) Gender-affirming hormones: −0.29 (−2.28 to 0.90) p-value: p ≤ 0.01)	IMPORTANT	VERY LOW
Bone density: change in lumbar BMD									
Change in lumbar spine BMD from baseline to 1 year in transfemales									
1 observational study Joseph et al. (2019)	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=31	None	Mean (SD), kg/m2 Baseline: 0.860 (0.154) 1 year: 0.859 (0.129) p=0.962 z-score Baseline: −0.016 (1.106) 1 year: −0.461 (1.121) p=0.003	IMPORTANT	VERY LOW
Change in lumbar spine BMD from baseline to 1 year in transmales									
1 observational study Joseph et al. (2019)	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=39	None	Mean (SD), kg/m2 Baseline: 0.694 (0.149) 1 year: 0.718 (0.124) p=0.006 z-score Baseline: −0.395 (1.428) 1 year: −1.276 (1.410) p=0.000	IMPORTANT	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Change in lumbar spine BMD from baseline to 2 years in transfemales									
1 observational study Joseph et al. (2019)	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=10	None	Mean (SD), kg/m2 Baseline: 0.867 (0.141) 2 years: 0.878 (0.130) p=0.395 z-score Baseline: 0.130 (0.972) 2 years: −0.890 (1.075) p=0.000	IMPORTANT	VERY LOW
Change in lumbar spine BMD from baseline to 2 years in transmales									
1 observational study Joseph et al. (2019)	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=21	None	Mean (SD), kg/m2 Baseline: 0.695 (0.220) 2 years: 0.731 (0.209) p=0.058 z-score Baseline: −0.715 (1.406) 2 years: −2.000 (1.384) p=0.000	IMPORTANT	VERY LOW
Change in lumbar BMD from starting GnRH analogue (mean age 14.9±1.9) to starting gender-affirming hormones (mean age 16.6±1.4) in transfemales									
1 observational study Klink et al. 2015	Serious limitations[2]	No serious indirectness	Not applicable	Not calculable	N=12 N=11	None	Mean (SD), g/m2 GnRH analogue: 0.84 (0.13) Gender-affirming hormones: 0.84 (0.11) NS z-score GnRH analogue: −0.77 (0.89) Gender-affirming hormones: −1.01 (0.98) NS	IMPORTANT	VERY LOW
Change in lumbar BMD from starting GnRH analogue (mean age 15.0±2.0) to starting gender-affirming hormones (mean age 16.4±2.3) in transmales									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
1 observational study Klink et al. 2015	Serious limitations[2]	No serious indirectness	Not applicable	Not calculable	N=18	None	Mean (SD), g/m2 GnRH analogue: 0.95 (0.12) Gender-affirming hormones: 0.91 (0.10) p-value: 0.006 z-score GnRH analogue: 0.17 (1.18) Gender-affirming hormones: −0.72 (0.99) p-value: <0.001	IMPORTANT	VERY LOW
Bone density: change in femoral neck (hip) BMD									
Change in femoral neck BMD from baseline to 1 year in transfemales									
1 observational study Joseph et al. (2019)	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=31	None	Mean (SD), kg/m2 Baseline: 0.894 (0.118) 1 year: 0.905 (0.104) p=0.571 z-score Baseline: 0.157 (0.905) 1 year: −0.340 (0.816) p=0.002	IMPORTANT	VERY LOW
Change from baseline to 1 year in femoral neck BMD in transmales									
1 observational study Joseph et al. (2019)	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=39	None	Mean (SD), kg/m2 Baseline: 0.772 (0.137) 1 year: 0.785 (0.120) p=0.797 z-score Baseline: −0.863 (1.215) 1 year: −1.440 (1.075) p=0.000	IMPORTANT	VERY LOW
Change from baseline to 2 years in femoral neck BMD in transfemales									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
1 observational study Joseph et al. (2019)	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=10	None	Mean (SD), kg/m2 Baseline: 0.920 (0.116) 2 years: 0.910 (0.125) p=0.402 z-score Baseline: 0.450 (0.781) 2 years: −0.600 (1.059) p=0.002	IMPORTANT	VERY LOW
Change from baseline to 2 years in femoral neck BMD in transmales									
1 observational study Joseph et al. (2019)	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=21	None	Mean (SD), kg/m2 Baseline: 0.766 (0.215) 2 years: 0.773 (0.197) p=0.604 z-score Baseline: −1.075 (1.145) 2 years: −1.779 (0.816) p=0.001	IMPORTANT	VERY LOW
Bone density: change in femoral neck (hip) BMAD									
Change from starting GnRH analogue to starting gender-affirming hormones in femoral neck BMAD in transfemales (bone age of <15 years)									
1 observational study Vlot et al. 2017	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=16	None	Median (range), g/cm3 GnRH analogue: 0.29 (0.20 to 0.33) Gender-affirming hormones: 0.27 (0.20 to 0.33) p≤0.1 z-score GnRH analogue: −0.71 (−3.35 to 0.37) Gender-affirming hormones: −1.32 (−3.39 to 0.21) p≤0.1	IMPORTANT	VERY LOW
Change in femoral neck BMAD from starting GnRH analogue to starting gender-affirming hormones in transfemales (bone age of ≥15)									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
1 observational study Vlot et al. 2017	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=6	None	Median (range), g/cm3 GnRH analogue: 0.30 (0.26 to 0.36) Gender-affirming hormones: 0.30 (0.26 to 0.34) NS z-score GnRH analogue: −0.44 (−1.37 to 0.93) Gender-affirming hormones: −0.36 (−1.50 to 0.46) NS	IMPORTANT	VERY LOW
Change in femoral neck BMAD from starting GnRH analogue to starting gender-affirming hormones in transmales (bone age of <14 years)									
1 observational study Vlot et al. 2017	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=10	None	Median (range), g/cm3 GnRH analogue: 0.31 (0.26 to 0.36) Gender-affirming hormones: 0.30 (0.22 to 0.35) NS z-score GnRH analogue: −0.01 (−1.30 to 0.91) Gender-affirming hormones: −0.37 (−2.28 to 0.47) NS	IMPORTANT	VERY LOW
Change in femoral neck BMAD from starting GnRH analogue to starting gender-affirming hormones in transmales (bone age of ≥14)									
1 observational study Vlot et al. 2017	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=23	None	Median (range), g/cm3 GnRH analogue: 0.33 (0.25 to 0.39) Gender-affirming hormones: 0.30 (0.23 to 0.41) p-value: ≤0.01 z-score	IMPORTANT	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
							GnRH analogue: 0.27 (−1.39 to 1.32) Gender-affirming hormones: −0.27 (−1.91 to 1.29) p-value: ≤0.01		
Bone density: change in femoral area BMD									
Change in femoral BMD from starting GnRH analogue (mean age 14.9±1.9) to starting gender-affirming hormones (mean age 16.6±1.4) in transfemales									
1 observational study Klink et al. 2015	Serious limitations[2]	No serious indirectness	Not applicable	Not calculable	N=14 N=6	None	Mean (SD), g/m2 GnRH analogue: 0.88 (0.12) Gender-affirming hormones: 0.87 (0.08) NS z-score GnRH analogue: −0.66 (0.77) Gender-affirming hormones: −0.95 (0.63) NS	IMPORTANT	VERY LOW
Change in femoral BMD from starting GnRH analogue (mean age 15.0±2.0) to starting gender-affirming hormones (mean age 16.4±2.3) in transmales									
1 observational study Klink et al. 2015	Serious limitations[2]	No serious indirectness	Not applicable	Not calculable	N=18 N=13	None	Mean (SD), g/m2 GnRH analogue: 0.92 (0.10) Gender-affirming hormones: 0.88 (0.09) p-value: 0.005 z-score GnRH analogue: 0.36 (0.88) Gender-affirming hormones: −0.35 (0.79) p-value: 0.001	IMPORTANT	VERY LOW
Bone density: change in femoral area BMAD									
Change in femoral BMAD from starting GnRH analogue (mean age 14.9±1.9) to starting gender-affirming hormones (mean age 16.6±1.4) in transfemales									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
1 observational study Klink et al. 2015	Serious limitations[2]	No serious indirectness	Not applicable	Not calculable	N=12 N=10	None	Mean (SD), g/cm3 GnRH analogue: 0.28 (0.04) Gender-affirming hormones: 0.26 (0.04) NS z-score GnRH analogue: −0.93 (1.22) Gender-affirming hormones: −1.57 (1.74) p-value: NS	IMPORTANT	VERY LOW
Change in femoral BMAD from starting GnRH analogue (mean age 15.0±2.0) to starting gender-affirming hormones (mean age 16.4±2.3) in transmales									
1 observational study Klink et al. 2015	Serious limitations[2]	No serious indirectness	Not applicable	Not calculable	N=18 N=18	None	Mean (SD), g/cm3 GnRH analogue: 0.32 (0.04) Gender-affirming hormones: 0.31 (0.04) NS z-score GnRH analogue: 0.01 (0.70) Gender-affirming hormones: −0.28 (0.74) NS	IMPORTANT	VERY LOW

Abbreviations: BMAD, bone mineral apparent density; BMD, bone mineral density; GnRH, gonadotrophin releasing hormone; NS, not significant; SD, standard deviation.

1 Downgraded 1 level - the cohort study by Joseph et al. (2019) was assessed as at high risk of bias (poor quality overall; lack of blinding and no control group).

2 Downgraded 1 level - the cohort study by Klink et al. (2015) was assessed as at high risk of bias (poor quality overall; lack of blinding, no randomisation, no control group and high number of participants lost to follow-up).

3 Downgraded 1 level - the cohort study by Vlot et al. (2017) was assessed as at high risk of bias (poor quality overall; lack of blinding and no control).

Table 9 Question 2: For children and adolescents with gender dysphoria, what is the short-term and long-term safety of GnRH analogues compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention? – cognitive development or functioning

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Cognitive development or functioning (1 cross-sectional study)									
IQ (4 subscales: arithmetic, vocabulary, picture arrangement, and block design) at a single time point between GnRH analogue treated and untreated transfemales									
1 Cross-sectional study Staphorsius et al. 2015	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=8 Mean (SD) 94.0 (10.3)	N=10 Mean (SD) 109.4 (21.2)	NR	IMPORTANT	VERY LOW
IQ (4 subscales: arithmetic, vocabulary, picture arrangement, and block design) at a single time point between GnRH analogue treated and untreated transmales									
1 Cross-sectional study Staphorsius et al. 2015	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=12 Mean (SD) 95.8 (15.6)	N=10 Mean (SD) 98.5 (15.9)	NR	IMPORTANT	VERY LOW
Reaction time at a single time point between GnRH analogue treated and untreated transfemales									
1 Cross-sectional study Staphorsius et al. 2015	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=8 Mean (SD) 10.9 (4.1)	N=10 Mean (SD) 9.9 (3.1)	NR	IMPORTANT	VERY LOW
Reaction time at a single time point between GnRH analogue treated and untreated transmales									
1 Cross-sectional study	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=12 Mean (SD) 9.9 (3.1)	N=10 Mean (SD) 10.0 (2.0)	NR	IMPORTANT	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Staphorsius et al. 2015									
Accuracy at a single time point between GnRH analogue treated and untreated transfemales									
1 cohort study Staphorsius et al. 2015	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=8 Mean (SD) 73.9 (9.1)	N=10 Mean (SD) 83.4 (9.5)	NR	IMPORTANT	VERY LOW
Accuracy at a single time point between GnRH analogue treated and untreated transmales									
1 cohort study Staphorsius et al. 2015	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=12 Mean (SD) 85.7 (10.5)	N=10 Mean (SD) 88.8 (9.7)	NR	IMPORTANT	VERY LOW

Abbreviations: GnRH, gonadotrophin releasing hormone; NR, not reported; *P*, P-value; SD, Standard deviation.

1 Downgraded 1 level - the cohort study by Staphorsius et al. (2015) was assessed as at high risk of bias (poor quality overall; lack of blinding and no randomisation).

Table 10: Question 2: In children and adolescents with gender dysphoria, what is the short-term and long-term safety of GnRH analogues compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention? – other safety outcomes

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Other safety outcomes: change in serum creatinine									
Change in serum creatinine (micromol/l) between baseline and 1 year in transfemales									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
1 observational study Schagen et al. 2016	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=28	None	Mean (SD) Baseline: 70 (12) 1 year: 66 (13) p-value: 0.20	IMPORTANT	VERY LOW
Change in serum creatinine (µmol/l) between baseline and 1 year in transmales									
1 observational study Schagen et al. 2016	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=29	None	Mean (SD) Baseline: 73 (8) 1 year: 68 (13) p-value: 0.01	IMPORTANT	VERY LOW
Other safety outcomes: liver enzymes									
Presence of elevated liver enzymes (AST, ALT, and glutamyl transferase) between baseline and during treatment									
1 observational study Schagen et al. 2016	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	39	None	Glutamyl transferase was not elevated at baseline or during treatment in any subject. Mild elevations of AST and ALT above the reference range were present at baseline but were not more prevalent during treatment than at baseline. Glutamyl transferase, AST, and ALT levels did not significantly change from baseline to 12 months of treatment.	IMPORTANT	VERY LOW
Other safety outcomes: adverse effects									
Proportion of patients reporting adverse effects									
1 cohort study Khatchadourian et al 2014	Serious limitations[2]	No serious indirectness	Not applicable	Not calculable[2]	27	None	3/27 adolescents[3]	Important	VERY LOW

Abbreviations: ALT, alanine aminotransferase; AST, aspartate aminotransferase; GnRH, gonadotrophin releasing hormone; P, P-value; SD, standard deviation.

1 Downgraded 1 level - the cohort study by Schagen et al. (2016) was assessed as at high risk of bias (poor quality overall; lack of blinding and no control).

2 Downgraded 1 level - the cohort study by Khatchadourian et al. (2014) was assessed as at high risk of bias (poor quality overall; lack of blinding, no control group and high number of participants lost to follow-up).

3 1 transmale developed sterile abscesses; they were switched from leuprolide acetate to triptorelin, and this was well tolerated. 1 transmale developed leg pains and headaches, which eventually resolved without treatment. 1 participant gained 19 kg within 9 months of initiating GnRH analogues.

Table 11: Question 4. From the evidence selected, are there any subgroups of children and adolescents with gender dysphoria that may derive more (or less) advantage from treatment with GnRH analogues than the wider population of children and adolescents with gender dysphoria? – critical outcomes

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Sex assigned at birth males	Sex assigned at birth females	Result		
Subgroups: sex assigned at birth males compared with sex assigned at birth females									
Impact on gender dysphoria									
Mean [±SD] Utrecht Gender Dysphoria Scale (version(s) not reported), time point at baseline (before GnRHa) versus follow-up (just before gender-affirming hormones).									
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	n-NR[2] score at T0 47.95 [±9.70] score at T1 49.67 [±9.47]	n-NR[2] score at T0 56.57 [±3.89] score at T1 56.62 [±4.0]	*F*-ratio 15.98 (*df, errdf*: 1,39), *P*<0.001	Critical	VERY LOW
Impact on mental health									
Mean [±SD] Beck Depression Inventory-II, time point at baseline (T0 before GnRH analogues) versus follow-up (T1 just before gender-affirming hormones).									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Sex assigned at birth males	Sex assigned at birth females	Result		
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	n-NR[2] score at T0 5.71 [±4.31] score at T1 3.50 [±4.58]	n-NR[2] score at T0 10.34 [±8.24] score at T1 6.09 [±7.93]	*F*-ratio 3.85 (*df, errdf*: 1,39), *P*=0.057	Critical	VERY LOW
Mean [±SD] Trait Anger (TPI), time point at baseline (T0 before GnRH analogues) versus follow-up (T1 just before gender-affirming hormones).									
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	n-NR[2] score at T0 5.22 [±2.76] score at T1 5.00 [±3.07]	n-NR[2] score at T0 6.43 [±2.78] score at T1 6.39 [±2.59]	*F*-ratio 5.70 (*df, errdf*: 1,39), *P*=0.022	Critical	VERY LOW
Mean [±SD] Trait Anxiety (STAI), time point at baseline (T0 before GnRH analogues) versus follow-up (T1 just before gender-affirming hormones).									
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	n-NR[2] score at T0 4.33 [±2.68] score at T1 4.39 [±2.64]	n-NR[2] score at T0 7.00 [±2.36] score at T1 6.17 [±2.69]	*F*-ratio 16.07 (*df, errdf*: 1,39), *P*<0.001	Critical	VERY LOW

Abbreviations: GnRH, gonadotrophin releasing hormone; NR, not reported; *P*, P-value; SD, Standard deviation.

1 Downgraded 1 level - the cohort study by de Vries et al. (2011) was assessed as at high risk of bias (poor quality overall; lack of blinding and no control group).
2 The overall sample size completing the outcome at both time points was 41.

Table 11: Question: 4. From the evidence selected, are there any subgroups of children and adolescents with gender dysphoria that may derive more (or less) advantage from treatment with GnRH analogues than the wider population of children and adolescents with gender dysphoria? – important outcomes

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Sex assigned at birth males	Sex assigned at birth females	Result		
Subgroups: sex assigned at birth males compared with sex assigned at birth females									
Impact on body image									
Mean [±SD] Body Image Scale (primary sexual characteristics), time point at baseline (T0 before GnRH analogues) versus follow-up (T1 just before gender-affirming hormones).									
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	n-NR[2] score at T0 4.02 [±0.16] score at T1 3.74 [±0.78]	n-NR[2] score at T0 4.16 [±0.52] score at T1 4.17 [±0.58]	*F*-ratio 4.11 (*df, errdf*: 1,55), *P*=0.047	Important	VERY LOW
Mean [±SD] Body Image Scale (secondary sexual characteristics), time point at baseline (T0 before GnRH analogues) versus follow-up (T1 just before gender-affirming hormones).									
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	n-NR[2] score at T0 2.66 [±0.50] score at T1 2.39 [±0.69]	n-NR[2] score at T0 2.81 [±0.76] score at T1 3.18 [±0.42]	*F*-ratio 11.57 (*df, errdf*: 1,55), *P*=0.001[3]	Important	VERY LOW
Mean [±SD] Body Image Scale (neutral characteristics), time point at baseline (T0 before GnRH analogues) versus follow-up (T1 just before gender-affirming hormones).									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Sex assigned at birth males	Sex assigned at birth females	Result		
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	n-NR[2] score at T0 2.60 [±0.58] score at T1 2.32 [±0.59]	n-NR[2] score at T0 2.24 [±0.62] score at T1 2.61 [±0.50]	*F*-ratio 0.081 (*df, errdf*: 1,55), *P*=0.777[3]	Important	VERY LOW
Psychosocial impact									
Mean [±SD] Children's Global Assessment Scale score, at baseline.									
1 cohort study Costa et al 2015	Serious limitations[4]	No serious indirectness	No serious inconsistency	Not calculable	n=not reported 55.4 [±12.7]	n=not reported 59.2 [±11.8]	*t*-test 2.15; *P*=0.03[5]	Important	VERY LOW
Mean [±SD] Children's Global Assessment Scale score, time point at baseline (T0 before GnRH analogues) versus follow-up (T1 just before gender-affirming hormones).									
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	n-NR[6] score at T0 73.10 [±8.84] score at T1 77.33 [±8.69]	n-NR[6] score at T0 67.25 [±11.06] score at T1 70.30 [±9.44]	*F*-ratio 5.77 (*df, errdf*: 1,39), *P*=0.021	Important	VERY LOW
Mean [±SD] Child Behaviour Checklist (total T) score, time point at baseline (T0 before GnRH analogues) versus follow-up (T1 just before gender-affirming hormones).									
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	n-NR[7] score at T0 59.42 [±11.78] score at T1 50.38	n-NR[7] score at T0 61.73 [±13.60]	*F*-ratio 2.64 (*df, errdf*: 1,52), *P=0.110*	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Sex assigned at birth males	Sex assigned at birth females	Result		
					[±10.57]	score at T1 57.73 [±10.82]			
Mean [±SD] Child Behaviour Checklist (internalising T) score, time point at baseline (T0 before GnRH analogues) versus follow-up (T1 just before gender-affirming hormones).									
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	n-NR[7] score at T0 60.00 [±9.51] score at T1 52.17 [±9.81]	n-NR[7] score at T0 61.80 [±14.12] score at T1 56.30 [±10.33]	*F*-ratio 1.16 (*df, errdf*: 1,52), *P*=0.286	Important	VERY LOW
Mean [±SD] Child Behaviour Checklist (externalising T) score, time point at baseline (T0 before GnRH analogues) versus follow-up (T1 just before gender-affirming hormones).									
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	n-NR[7] score at T0 54.71 [±12.91] score at T1 48.75 [±10.22]	n-NR[7] score at T0 60.70 [±12.64] score at T1 57.87 [±11.66]	*F*-ratio 6.29 (*df, errdf*: 1,52), *P*=0.015	Important	VERY LOW
Mean [±SD] Youth Self-Report (total T) score, time point at baseline (T0 before GnRH analogues) versus follow-up (T1 just before gender-affirming hormones).									
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	n-NR[7] score at T0 53.56 [±12.26] score at T1 47.84 [±10.86]	n-NR[7] score at T0 57.10 [±10.87] score at T1 51.86 [±10.11]	*F*-ratio 1.99 (*df, errdf*: 1,52), *P*=0.164	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients (n/N%)		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Sex assigned at birth males	Sex assigned at birth females	Result		
Mean [±SD] Youth Self-Report (internalising T) score, time point at baseline (T0 before GnRH analogues) versus follow-up (T1 just before gender-affirming hormones).									
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	n-NR[7] score at T0 55.88 [±11.81] score at T1 49.24 [±12.24]	n-NR[7] score at T0 56.17 [±13.25] score at T1 50.24 [±11.28]	*F*-ratio 0.049 (*df, errdf*: 1,52), *P*=0.825	Important	VERY LOW
Mean [±SD] Youth Self-Report (externalising T) score, time point at baseline (T0 before GnRHa) versus follow-up (T1 just before gender-affirming hormones).									
1 cohort study de Vries et al 2011	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	n-NR[7] score at T0 48.72 [±11.83] score at T1 46.52 [±9.23]	n-NR[7] score at T0 57.24 [±10.59] score at T1 52.97 [±8.51]	*F*-ratio 9.14 (*df, errdf*: 1,52), *P*=0.004	Important	VERY LOW

Abbreviations: GnRH, gonadotrophin releasing hormone; NR, not reported; *P*, P-value; SD, Standard deviation.

1 Downgraded 1 level - the cohort study by de Vries et al. (2011) was assessed as at high risk of bias (poor quality overall; lack of blinding and no control group).
2 The overall sample size completing the outcome at both time points was 57.
3 There was a significant interaction effect between sex assigned at birth and BDI between T0 and T1; sex assigned at birth females became more dissatisfied with their secondary F (df, errdf), P: 14.59 (1,55), P<0.001) and neutral F (df, errdf), P: 15.26 (1,55), P<0.001) sex characteristics compared with sex assigned at birth males.
4 Serious limitations – the cohort study by Costa et al. 2015 was assessed as at high risk of bias (poor quality).
5 At baseline, CGAS scores were not associated with any demographic variable, in both sex assigned at birth males and females. There were no statistically significant differences in CGAS scores between gender dysphoric sex assigned at birth males and females in all follow-up evaluations (P>0.1; full data not reported).
6 The overall sample size completing the outcome at both time points was 41
7 The overall sample size completing the outcome at both time points was 54.

Glossary

Beck Depression Inventory-II (BDI-II)	The BDI-II is a tool for assessing depressive symptoms. There are no specific scores to categorise depression severity, but it is suggested that 0 to 13 is minimal symptoms, 14 to 19 is mild depression, 20 to 28 is moderate depression, and severe depression is 29 to 63.
Body Image Scale (BIS)	The BIS is used to measure body satisfaction. The scale consists of 30 body features, which the person rates on a 5-point scale. Each of the 30 items falls into one of 3 basic groups based on its relative importance as a gender-defining body feature: primary sex characteristics, secondary sex characteristics, and neutral body characteristics. A higher score indicates more dissatisfaction.
Bone mineral apparent density (BMAD)	BMAD is a size adjusted value of bone mineral density (BMD) incorporating body size measurements using UK norms in growing adolescents.
Child Behaviour Checklist (CBCL)	CBCL is a checklist parents complete to detect emotional and behavioural problems in children and adolescents.
Children's Global Assessment Scale (CGAS)	The CGAS tool is a validated measure of global functioning on a single rating scale from 1 to 100. Lower scores indicate poorer functioning.
Gender	The roles, behaviours, activities, attributes, and opportunities that any society considers appropriate for girls and boys, and women and men.
Gender dysphoria	Discomfort or distress that is caused by a discrepancy between a person's gender identity (how they see themselves regarding their gender) and that person's sex assigned at birth (and the associated gender role, and/or primary and secondary sex characteristics).
Gonadotrophin releasing hormone (GnRH) analogues	GnRH analogues competitively block GnRH receptors to prevent the spontaneous release of 2 gonadotropin hormones, Follicular Stimulating Hormone (FSH) and Luteinising Hormone (LH) from the pituitary gland. The reduction in FSH and LH secretion reduces oestradiol secretion from the ovaries in those whose sex assigned at birth was female and testosterone secretion from the testes in those whose sex assigned at birth was male.
Sex assigned at birth	Sex assigned at birth (male or female) is a biological term and is based on genes and how external and internal sex and reproductive organs work and respond to hormones. Sex is the label that is recorded when a baby's birth is registered.
Tanner stage	Tanner staging is a scale of physical development.
Trait Anger Spielberger scales of the State-Trait Personality Inventory (TPI)	The TPI is a validated 20-item inventory tool which measures the intensity of anger as the disposition to experience angry feelings as a personality trait. Higher scores indicate greater anger.
Transgender (including transmale and transfemale)	Transgender is a term for someone whose gender identity is not congruent with their birth-registered sex. A transmale is a person who identifies as male and a transfemale is a person who identifies as female.

Utrecht Gender Dysphoria Scale (UGDS)	The UGDS is a validated screening tool for both adolescents and adults to assess gender dysphoria. It consists of 12 items, to be answered on a 1- to 5-point scale, resulting in a sum score between 12 and 60. The higher the UGDS score the greater the impact on gender dysphoria.
Youth Self-Report (YSR)	The self-administered YSR is a checklist to detect emotional and behavioural problems in children and adolescents. It is self-completed by the child or adolescent. The scales consist of a Total problems score, which is the sum of the scores of all the problem items. An internalising problem scale sums the anxious/depressed, withdrawn-depressed, and somatic complaints scores while the externalising problem scale combines rule-breaking and aggressive behaviour.

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No. 22-11707

UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT

PAUL A. EKNES-TUCKER, et al.,
Plaintiffs-Appellees,

&

UNITED STATES OF AMERICA
Intervenor-Plaintiff-Appellee,

v.

GOVERNOR OF THE STATE OF ALABAMA, et al.,
Defendants-Appellants.

On Appeal from the United States District Court
for the Middle District of Alabama
Case No. 2:22-cv-184-LCB

APPELLANTS' APPENDIX VOLUME VI OF XIII

Christopher Mills
SPERO LAW LLC
557 East Bay St.,
#22251
Charleston, SC 29451
(843) 606-0640
cmills@spero.law

Steve Marshall
Attorney General
Edmund G. LaCour Jr.
Solicitor General
A. Barrett Bowdre
Thomas A. Wilson
Deputy Solicitors General
James W. Davis
Deputy Attorney General
Benjamin M. Seiss
Assistant Attorney General
STATE OF ALABAMA
OFFICE OF THE ATTORNEY GENERAL
501 Washington Ave.
Montgomery, AL 36130
(334) 242-7300
Edmund.LaCour@AlabamaAG.gov

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DEFENDANT'S EXHIBIT 10

Evidence review: Gender-affirming hormones for children and adolescents with gender dysphoria

This document will help inform Dr Hilary Cass' independent review into gender identity services for children and young people. It was commissioned by NHS England and Improvement who commissioned the Cass review. It aims to assess the evidence for the clinical effectiveness, safety and cost-effectiveness of gender-affirming hormones for children and adolescents aged 18 years or under with gender dysphoria.

The document was prepared by NICE in October 2020.

The content of this evidence review was up to date on 21 October 2020. See summaries of product characteristics (SPCs), British National Formulary (BNF) or the Medicines and Healthcare products Regulatory Agency (MHRA) or NICE websites for up-to-date information.

Contents

1. Introduction

This review aims to assess the evidence for the clinical effectiveness, safety and cost-effectiveness of gender-affirming hormones for children and adolescents aged 18 years or under with gender dysphoria. The review follows the NHS England Specialised Commissioning process and template and is based on the criteria outlined in the PICO framework (see appendix A). This document will help inform Dr Hilary Cass' independent review into gender identity services for children and young people.

Gender dysphoria in children, also known as gender identity disorder or gender incongruence of childhood (World Health Organisation 2020), refers to discomfort or distress that is caused by a discrepancy between a person's gender identity (how they see themselves[1] regarding their gender) and that person's sex assigned at birth and the associated gender role, and/or primary and secondary sex characteristics (Diagnostic and Statistical Manual of Mental Disorders 2013).

Gender-affirming hormones are oestradiol for sex assigned at birth males (transfemales) and testosterone for sex assigned at birth females (transmales). The aim of gender-affirming hormones is to induce the development of the physical sex characteristics congruent with the individual's gender expression while aiming to improve mental health and quality of life outcomes.

No oestradiol-containing products are licensed for gender dysphoria and therefore any use for children and adolescents with gender dysphoria is off-label.

The only testosterone-containing product licensed for gender dysphoria is Sustanon 250 mg/ml solution for injection, which is indicated as supportive therapy for transmales, use of all other testosterone-containing products for children and adolescents with gender dysphoria is off-label.

For children and adolescents with gender dysphoria it is recommended that management plans are tailored to the needs of the individual and aim to ameliorate the potentially negative impact of gender dysphoria on general developmental processes, to support young people and their families in managing the uncertainties inherent in gender identity development and to provide ongoing opportunities for exploration of gender identity. The plans may also include psychological support and exploration and, for some individuals, the use of gonadotrophin releasing hormone (GnRH) analogues in adolescence to suppress puberty; this may be followed later with gender-affirming hormones of the desired sex (NHS England 2013).

Currently NHS England, as part of the Gender Identity Development Service for Children and Adolescents, routinely commissions gender-affirming hormones for young people with continuing gender dysphoria from around their 16th birthday subject to individuals meeting the eligibility and readiness criteria (Clinical Commissioning Policy 2016).

[1] Gender refers to the roles, behaviours, activities, attributes and opportunities that any society considers appropriate for girls and boys, and women and men (World Health Organisation, Health Topics: Gender).

2. Executive summary of the review

Ten observational studies were included in the evidence review. Seven studies were retrospective observational studies (Allen et al. 2019, Kaltiala et al. 2020, Khatchadourian et al. 2014, Klaver et Al. 2020, Klink et al. 2015, Stoffers et al. 2019, Vlot et al. 2017) and 3 studies were prospective longitudinal observational studies (Achille et al. 2020, Kuper et al. 2020, Lopez de Lara et al. 2020). No studies directly compared gender-affirming hormones to a control group (either placebo or active comparator). Follow-up was relatively short across all studies, with an average duration of treatment with gender-affirming hormones between around 1 year and 5.8 years.

The terminology used in this topic area is continually evolving and is different depending on stakeholder perspectives. In this evidence review we have used the phrase 'people's assigned sex at birth' rather than saying natal or biological sex and 'cross sex hormones' are now referred to as 'gender-affirming hormones'. The research studies may use historical terms which are no longer considered appropriate.

In children and adolescents with gender dysphoria, what is the clinical effectiveness of treatment with gender-affirming hormones compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention?

Critical outcomes

The critical outcomes for decision making are impact on gender dysphoria, impact on mental health and quality of life. The quality of evidence for all these outcomes was assessed as very low certainty using modified GRADE.

Impact on gender dysphoria
The study by Lopez de Lara et al. 2020 in 23 adolescents with gender dysphoria found that during treatment with gender-affirming hormones, gender dysphoria (measured using the Utrecht Gender Dysphoria Scale [UGDS]) was statistically significantly reduced (improved) from a mean [±SD] score of 57.1 (±4.1) points at baseline to 14.7 (±3.2) points at 12 months, which is below the threshold (40 points) for gender dysphoria ($p<0.001$).

Impact on mental health
Depression
The study by Lopez de Lara et al. 2020 in 23 adolescents with gender dysphoria found that during treatment with gender-affirming hormones, depression (measured using the Beck Depression Inventory-II [BDI-II]) was statistically significantly reduced from a mean [±SD] score of 19.3 (±5.5) points at baseline to 9.7 (±3.9) points at 12 months ($p<0.001$).

The study by Achille et al. 2020 in 50 adolescents with gender dysphoria found that during treatment with gender-affirming hormones, depression was statistically significantly reduced from baseline to about 12 months follow-up:

- The Center for Epidemiologic Studies Depression (CESD-R) improved from a mean score of 21.4 points at baseline to 13.9 points ($p<0.001$).
- The Patient Health Questionnaire (PHQ 9) Modified for Teens improved, although absolute scores were not reported numerically ($p<0.001$).

The study by Kuper et al. 2020 in 148 adolescents with gender dysphoria (of whom 123 received gender-affirming hormones) found that during treatment with gender-affirming hormones for an average of 10.9 months, the impact on depression (measured using the Quick Inventory of Depressive Symptoms [QIDS]) was unclear as no statistical analysis was reported. The mean (±SD) self-reported score was 9.6 points (±5.0) at baseline and 7.4 (±4.5) at follow-up. The mean (±SD) clinician-reported score was 5.9 points (±4.1) at baseline and 6.0 (±3.8).

The study by Kaltiala et al. 2020 in 52 adolescents with gender dysphoria found that during treatment with gender-affirming hormones, statistically significantly fewer participants needed treatment for depression (54% at initial assessment compared with 15% at 12-month follow-up, p<0.001). No details of the treatments for depression are reported.

Anxiety

The study by Lopez de Lara et al. 2020 in 23 adolescents with gender dysphoria found that during treatment with gender-affirming hormones, state anxiety (measured using the State-Trait Anxiety Inventory [STAI] – State subscale) was statistically significantly reduced from a mean (±SD) score of 33.3 points (±9.1) at baseline to 16.8 points (±8.1) at 12 months (p<0.001). Trait anxiety (measured using STAI – Trait subscale) was also statistically significantly reduced from a mean (±SD) score of 33.0 (±7.2) points at baseline to 18.5 (±8.4) points at 12 months (p<0.001).

The study by Kuper et al. 2020 in 148 adolescents with gender dysphoria found that during treatment with gender-affirming hormones, small reductions were seen in anxiety, panic, generalised anxiety, social anxiety and separation anxiety symptoms and school avoidance (measured using the Screen for Child Anxiety Related Emotional Disorders [SCARED] questionnaire) from baseline to follow-up (mean duration of treatment 10.9 months). The statistical significance of these findings are unknown as no statistical analyses were reported.

The study by Kaltiala et al. 2020 in 52 adolescents with gender dysphoria found that during treatment with gender-affirming hormones, statistically significantly fewer participants needed treatment for anxiety (48% at initial assessment compared with 15% at 12-month follow-up, p<0.001). No details of treatments for anxiety are reported.

Suicidality and self-injury

The study by Allen et al. 2019 in 47 adolescents with gender dysphoria found that during treatment with gender-affirming hormones, suicide risk (measured using the Ask Suicide-Screening Questions [ASQ]) was statistically significantly reduced from an adjusted mean (±SE) score of 1.11 points (±0.22) at baseline to 0.27 points (±0.12) after about 12 months (p<0.001).

The study by Achille et al. 2020 in 50 adolescents with gender dysphoria (of whom 35 received gender-affirming hormones at follow-up) found that during treatment with gender-affirming hormones, the impact on suicidal ideation was unclear (measured using the PHQ 9_Modified for Teens with additional questions for suicidal ideation). At baseline 10%of participants had suicidal ideation and 6% had suicidal ideation after about 12 months, but it is unclear if these participants received gender-affirming hormones. No statistical analyses were reported.

The study by Kuper et al. 2020 in 148 adolescents with gender dysphoria reported the impact on suicidal ideation, suicide attempts and non-suicidal self-injury during treatment with gender-affirming hormones, after mean 10.9 months follow-up . The statistical significance of these findings are unknown as no statistical analyses were reported:

- Suicidal ideation was reported in 25% of participants 1 month before the initial assessment and in 38% of participants during follow-up.
- Suicide attempts were reported in 2% of participants at 3 months before the initial assessment and in 5% during follow-up.
- Self-injury was reported in 10% of participants at 3 months before the initial assessment and in 17% during follow-up.

The study by Kaltiala et al. 2020 in 52 adolescents with gender dysphoria reported that during treatment with gender-affirming hormones, statistically significantly fewer participants needed treatment for suicidal ideation or self-harm (35% at initial assessment compared with 4% at 12-month follow-up, p<0.001). No details of treatments for suicidal ideation or self-harm are reported.

Other related symptoms

The study by Kaltiala et al. 2020 in 52 adolescents with gender dysphoria found that during treatment with gender-affirming hormones, there was no statistically significant difference in the number of people needing treatment for either psychotic symptoms or psychosis, conduct problems or antisocial behaviour, substance abuse, autism, attention deficit hyperactivity disorder (ADHD) or eating disorders during the 12-month 'real life' phase compared with before or during the assessment. No details of the treatments received are reported.

Impact on quality of life

The study by Achille et al. 2020 in 50 adolescents with gender dysphoria (of whom 35 were receiving gender-affirming hormones at follow-up) found that during treatment with gender-affirming hormones, quality of life (measured using the Quality of Life Enjoyment and Satisfaction Questionnaire [QLES-Q-SF]) was statistically significantly improved from baseline to about 12 months, but absolute scores were not reported numerically (p<0.001).

The study by Allen et al. 2019 in 47 adolescents with gender dysphoria found that during treatment with gender-affirming hormones, quality of life (measured using the General Well-Being Scale [GWBS] of the Paediatric Quality of Life Inventory) was statistically significantly improved from an adjusted mean (±SE) score of 61.70 (±2.43) points at baseline to 70.23 (±2.15) points at about 12 months (p<0.002).

Important outcomes

The important outcomes for decision making are impact on body image, psychosocial impact, engagement with healthcare services, impact on extent of and satisfaction with surgery and de-transition. The quality of evidence for all these outcomes was assessed as very low certainty using modified GRADE.

Impact on body image

The study by Kuper et al. 2020 in 148 adolescents with gender dysphoria found that during treatment with gender-affirming hormones, the impact on body image is unclear (measured using the Body Image Scale [BIS]). The mean (±SD) BIS score was 70.7 points (±15.2) at baseline and 51.4 points (±18.3) at follow-up (mean duration of treatment 10.9 months; no statistical analysis was reported).

Psychosocial impact
The study by Lopez de Lara et al. 2020 in 23 adolescents with gender dysphoria found that during treatment with gender affirming hormones, family functioning is unchanged (measured using the Family Adaptability, Partnership, Growth, Affection and Resolve [APGAR] test). The mean score was 17.9 points at baseline and 18.0 points at 12-month follow-up (no statistical analysis was reported).

The study by Lopez de Lara et al. 2020 in 23 adolescents with gender dysphoria found that during treatment with gender affirming hormones, behavioural problems (measured using the Strengths and Difficulties Questionnaire [SDQ]) were statistically significantly improved from a mean (±SD) of 14.7 (±3.3) points at baseline to 10.3 points (±2.9) at 12-month follow-up ($p<0.001$).

The study by Kaltiala et al. 2020 in 52 adolescents with gender dysphoria found that about 12-months after starting treatment with gender-affirming hormones:

- Statistically significantly fewer participants were living with parents or guardians (73% versus 40%, $p=0.001$) and statistically significantly fewer participants had normal peer contacts (89% versus 81%, $p<0.001$).
- There were no statistically significant differences in:
    - progress in school or work (64% versus 60%, $p=0.69$),
    - the number of participants who had been dating or in steady relationships (62% versus 58%, $p=0.51$)
    - the ability to cope with matters outside of the home (for example, shopping and travelling alone on local public transport; 81% versus 81%, $p=1.0$)

Engagement with health care services
No evidence was identified.

Impact on extent of and satisfaction with surgery
No evidence was identified.

De-transition
No evidence was identified.

In children and adolescents with gender dysphoria, what is the short-term and long-term safety of gender-affirming hormones compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention?

Important outcomes

The important outcomes for decision making are short- and long-term safety outcomes and adverse effects. The quality of evidence for all these outcomes was assessed as very low certainty using modified GRADE.

Bone density

The study by Klink et al. 2015 in 34 adolescents with gender dysphoria (who were previously treated with a GnRH analogue) found that gender-affirming hormones may increase lumbar spine and femoral neck bone density. However, not all results are statistically significant (particularly in transfemales). Z-scores suggest the average bone density at the end of follow-up was generally lower than in the equivalent cisgender population (transfemales compared with cis-males and transmales compared with cis-females). From starting gender-affirming hormones to age 22 years:

- There was no statistically significant difference in lumbar spine bone mineral apparent density (BMAD) z-score in transfemales, but this was statistically significantly higher in transmales (z-score [±SD]: start of hormones -0.50 [±0.81], age 22 years -0.033 [±0.95], p=0.002).
- There was no statistically significant difference in lumbar spine bone mineral density (BMD) z-score in transfemales or transmales.
- Actual lumbar spine BMAD and BMD values were statistically significantly higher in transfemales and transmales.
- There was no statistically significant difference in femoral neck BMD z-score in transfemales, but this was statistically significantly higher in transmales (z-score [SD]: start of hormones -0.35 [0.79], age 22 years -0.35 [0.74], p=0.006).
- There was no statistically significant difference in actual femoral neck BMAD values in transfemales, but this was statistically significantly higher in transmales.
- Actual femoral neck BMD values were statistically significantly higher in transfemales and transmales.

The study by Vlot et al. 2017 in 70 adolescents with gender dysphoria (who were previously treated with a GnRH analogue) found that gender-affirming hormones may increase lumbar spine and femoral neck bone density. However, not all results are statistically significant. Z-scores suggest the average bone density at the end of follow-up was generally lower than the equivalent cisgender population (transfemales compared with cis-males and transmales compared with cis-females). From starting gender-affirming hormones to 24-month follow-up:

- The z-score for lumbar spine BMAD was statistically significantly higher in transfemales with a bone age of less than 15 years (z-score [range]: start of hormones -1.52 [-2.36 to 0.42], 24-month follow-up -1.10 [-2.44 to 0.69], p≤ 0.05) and 15 years and older (z-score [range]: start of hormones -1.15 [-2.21 to 0.08], 24-month follow-up -0.66 [-1.66 to 0.54], p≤ 0.05).
- The z-score for lumbar spine BMAD was statistically significantly higher in transmales with a bone age of less than 14 years (z-score [range]: start of hormones -0.84 [-2.2 to 0.87], 24-month follow-up -0.15 [-1.38 to 0.94], p≤ 0.01) and 14 years and older (z-score [range]: start of hormones -0.29 [-2.28 to 0.90], 24-month follow-up -0.06 [-1.75 to 1.61], p≤ 0.01).
- Actual lumbar spine BMAD values were statistically significantly higher in transfemales and transmales of all bone ages.
- There was no statistically significant difference in femoral neck BMAD z-score in transfemales (all bone ages).

- The z-score for femoral neck BMAD was statistically significantly higher in transmales with a bone age of less than 14 years (z-score [range]: start of hormones -0.37 [-2.28 to 0.47], 24-month follow-up -0.37 [-2.03 to 0.85], p≤ 0.01) and 14 years and older (z-score [range]: start of hormones -0.27 [-1.91 to 1.29], 24-month follow-up 0.02 [-2.1 to 1.35], p≤0.05).
- There was no statistically significant difference in actual femoral neck BMAD values in transfemales (all bone ages), but this was statistically significantly higher in transmales (all bone ages).

The study by Stoffers et al. 2019 in 62 sex assigned at birth females (transmales) with gender dysphoria (who were previously treated with a GnRH analogue) found that during treatment with gender-affirming hormones there was no statistically significant difference in lumbar spine or femoral neck bone density (measured as BMD z-scores or actual values) from starting gender-affirming hormones to any timepoint (6, 12 and 24 months).

Change in clinical parameters

The study by Klaver et al. 2020 in 192 adolescents with gender dysphoria found that during treatment with gender-affirming hormones, from starting treatment to age 22 years:

- Glucose levels, insulin levels and insulin resistance were largely unchanged in transfemales and transmales.
- Total cholesterol, HDL cholesterol and LDL cholesterol levels were unchanged in transfemales, and there was a statistically significant improvement in triglyceride levels.
- Total cholesterol, HDL cholesterol, LDL cholesterol and triglyceride levels significantly worsened in transmales, but mean levels were within the UK reference range at the end of treatment.
- Diastolic blood pressure was statistically significantly increased in transfemales and transmales. Systolic blood pressure was also statistically significantly increased in transmales, but not in transfemales. The absolute increases in blood pressure were small.
- Body mass index was statistically significantly increased in transfemales and transmales, although most participants were within the healthy weight range (18.5 to 24.9 kg/m).

The study by Stoffers et al. 2019 in 62 sex assigned at birth females (transmales) with gender dysphoria found that during treatment with gender affirming hormones, from starting treatment to 24-month follow-up:

- There was no statistically significant change in glycosylated haemoglobin (HbA1c).
- There was no statistically significant change in aspartate aminotransferase (AST), alanine aminotransferase (ALT) and gamma-glutamyltransferase (GCT).
- There was a statistically significant increase in alkaline phosphatase (ALP) at some timepoints, but the difference was not statistically significant by 24-months.
- There was a statistically significant increase in serum creatinine levels at all timepoints up to 24 months, but these were within the UK reference range. Serum urea levels were unchanged (follow-up duration not reported).

Treatment discontinuation and adverse effects

The study by Khatchadourian et al. 2014 in 63 adolescents (24 transfemales and 39 transmales) with gender dysphoria found that during treatment with gender affirming hormones (duration of treatment not reported):

- No participants permanently discontinued treatment.
- No transfemales temporarily discontinued treatment, but 3 transmales temporarily discontinued treatment due to mental health comorbidities (n=2) and androgenic alopecia (n=1). All 3 participants eventually resumed treatment, although timescales were not reported
- No severe complications were reported.
- No transfemales reported minor complications, but 12 transmales developed minor complications which were: severe acne (n=7), androgenic alopecia (n=1), mild dyslipidaemia (n=3) and significant mood swings (n=1).

In children and adolescents with gender dysphoria, what is the cost-effectiveness of gender-affirming hormones compared to one or a combination of psychological support, social transitioning to the desired gender or no intervention?

No cost-effectiveness evidence was found for gender-affirming hormones for children and adolescents with gender dysphoria.

From the evidence selected, are there particular sub-groups of children and adolescents with gender dysphoria that derive comparatively more (or less) benefit from treatment with gender-affirming hormones than the wider population of children and adolescents with gender dysphoria?

Some studies reported data separately for the following subgroups of children and adolescents with gender dysphoria:

- Sex assigned at birth males (transfemales).
- Sex assigned at birth females (transmales).
- Tanner stage at which GnRH analogue or gender-affirming hormones started.
- Diagnosis of a mental health condition.

Some direct comparisons of transfemales and transmales were included. No evidence was found for other specified subgroups.

Sex assigned at birth males (transfemales)
Impact on mental health
In the study by Kuper et al. 2020 in 33 to 45 (number varies by outcome) sex assigned at birth males (transfemales) with gender dysphoria found that during treatment with gender-affirming hormones changes were seen in depression, anxiety and anxiety-related symptoms from baseline to follow-up (mean duration of treatment 10.9 months). The authors did not report any statistical analyses, so it is unclear if any changes were statistically significant.

The study by Allen et al. 2019 in 47 adolescents with gender dysphoria found that during treatment with gender-affirming hormones, suicide risk (measured using the ASQ) is not statistically significant different in transfemales compared with transmales, between baseline and the final assessment at about 12 months (p=0.79).

The study by Achille et al. 2020 in 17 transfemales with gender dysphoria found that during treatment with gender-affirming hormones, suicidal ideation (measured using the PHQ 9_Modified for Teens with additional questions for suicidal ideation) was reported in 11.8% (2/17) of transfemales at baseline compared with 5.9% (1/17) at about 12-months follow-up (no statistical analysis was reported).

Impact on quality of life
The study by Allen et al. 2019 in 47 adolescents with gender dysphoria found that during treatment with gender-affirming hormones, quality of life (measured using the GWBS of the Paediatric Quality of Life Inventory) was not statistically significant different in transfemales compared with transmales, between baseline and the final assessment at about 12 months (p=0.32).

Bone density
The studies by Klink et al. 2015 and Vlot et al. 2017 provided evidence on bone density in transfemales; see above for details.

Change in clinical parameters
The study by Klaver et al. 2020 provided evidence on the following clinical parameters in transfemales:

- Glucose levels, insulin levels and insulin resistance.
- Total cholesterol, HDL cholesterol and LDL cholesterol and triglycerides.
- Blood pressure.
- Body mass index.

See above for details.

Treatment discontinuation and adverse effects
The study by Khatchadourian et al. 2014 provided evidence on treatment discontinuation and adverse effects in transfemales; see above for details.

Sex assigned at birth females (transmales)
Impact on mental health
In the study by Kuper et al. 2020 in 65 to 78 (number varies by outcome) sex assigned at birth females (transmales) with gender dysphoria found that during treatment with gender-affirming hormones, changes were seen in depression, anxiety and anxiety-related symptoms from baseline to 10.9 month follow-up. The authors did not report any statistical analyses, so it is unclear if any changes were statistically significant.

The study by Allen et al. 2019 in 47 adolescents with gender dysphoria found that during treatment with gender-affirming hormones, suicide risk (measured using the ASQ) is not statistically significantly different in transmales compared with transfemales, between baseline and the final assessment (p=0.79).

The study by Achille et al. 2020 in 33 transmales with gender dysphoria found that during treatment with gender-affirming hormones, suicidal ideation (measured using the PHQ 9_Modified for Teens with additional questions for suicidal ideation) was reported in 9.1% (3/33) of transmales at baseline compared with 6.1% (2/33) at about 12-months follow-up (no statistical analysis reported).

Impact on quality of life
The study by Allen et al. 2019 in 47 adolescents with gender dysphoria found that during treatment with gender-affirming hormones, quality of life (measured using the GWBS of the Paediatric Quality of Life Inventory) was not statistically significantly different in transmales compared with transfemales, between baseline and the final assessment at about 12 months (p=0.32).

Bone density
The studies by Klink et al. 2015, Stoffers et al. 2019 and Vlot et al. 2017 provided evidence on bone density in transmales; see above for details.

Change in clinical parameters
The study by Klaver et al. 2020 provided evidence on the following clinical parameters in transmales:

- Glucose levels, insulin levels and insulin resistance.
- Total cholesterol, HDL cholesterol and LDL cholesterol and triglycerides.
- Blood pressure.
- Body mass index.

See above for details.

The study by Stoffers et al. 2019 provided evidence on HbA1c, liver enzymes and renal function in transmales; see above for details.

Treatment discontinuation and adverse effects
The study by Khatchadourian et al. 2014 provided evidence on treatment discontinuation and adverse effects in transmales; see above for details.

Tanner stage at which GnRH analogues or gender-affirming hormones started
The study by Kuper et al. 2020 stated that the impact of Tanner stage on outcomes was considered, but it is unclear if this refers to Tanner stage at the initial assessment, at the start of GnRH analogue treatment or another timepoint. No results were reported.

Diagnosis of a mental health condition
Impact on mental health
The study by Achille et al. 2020 in 50 adolescents with gender dysphoria found that during treatment with gender-affirming hormones, there was no statistically significant difference in depression (measured using the CESD-R and PHQ 9_Modified for Teens) when the results were adjusted for engagement in counselling and medicines for mental health problems, from baseline to about 12-months follow-up.

Impact on quality of life
The study by Achille et al. 2020 in 50 adolescents with gender dysphoria found that during treatment with gender-affirming hormones, there was no statistically significant difference in quality of life (measured using the QLES-Q-SF) when the results were adjusted for engagement in counselling and medicines for mental health problems, from baseline to about 12-months follow-up.

From the evidence selected,

(a) what are the criteria used by the research studies to define gender dysphoria, gender identity disorder and gender incongruence of childhood?
(b) what were the ages at which participants commenced treatment with gender-affirming hormones?
(c) what was the duration of treatment with GnRH analogues?

The most commonly reported diagnostic criteria for gender dysphoria was the DSM criteria in use at the time (5/10 studies). In 3 studies (Klaver et al. 2020, Klink et al. 2015 and Vlot et al. 2017) DSM-IV-TR criteria was used. In 2 studies (Kuper et al. 2020 and Stoffers et al. 2019) DSM-V criteria was used. One study from Finland (Kaltiala et al. 2020) used the ICD-10 diagnosis of 'transexualism'. It was not reported how gender dysphoria was defined in the remaining 4 studies.

In the studies, treatment with gender-affirming hormones started at about 16 to 17 years, with a range of about 14 to 19 years. Most studies did not report the duration of treatment with GnRH analogues, but where this was reported there was a wide variation ranging from a few months up to about 5 years (Klaver et al. 2020, Klink et al. 2015 and Stoffers et al. 2019).

Discussion

The key limitation to identifying the effectiveness and safety of gender-affirming hormones for children and adolescents with gender dysphoria is the lack of reliable comparative studies.

All the studies included in the evidence review are uncontrolled observational studies, which are subject to bias and confounding and were of very low certainty using modified GRADE. A fundamental limitation of all the uncontrolled studies included in this review is that any changes in scores from baseline to follow-up could be attributed to a regression-to-the-mean.

The included studies have relatively short follow-up, with an average duration of treatment with gender-affirming hormones between around 1 year and 5.8 years. Further studies with a longer follow-up are needed to determine the long-term effect of gender-affirming hormones for children and adolescents with gender dysphoria.

Most studies included in this review did not report comorbidities (physical or mental health) and no study reported concomitant treatments in detail. Because of this it is not clear whether any changes seen were due to gender-affirming hormones or other treatments the participants may have received.

There is a degree of indirectness in some studies, with some participants included that fall outside of the population of this evidence review. Furthermore, participant numbers are poorly reported in some studies, with high numbers lost to follow-up or outcomes not reported for some participants. The authors provide no explanation for this incomplete reporting.

Details of the gender-affirming hormone treatment regimen are poorly reported in most of the included studies, with limited information provided about the medicines, doses and routes of administration used. It is not clear whether the interventions used in the studies are reflective of current UK practice for children and adolescents with gender dysphoria.

It is difficult to draw firm conclusions for many of the effectiveness and safety outcomes reported in the included studies because many different scoring tools and methods were used to assess the same outcome, often with conflicting results. In addition to this, most outcomes reported across the included studies do not have an accepted minimal clinically important difference (MCID), making it difficult the determine whether any statistically significant changes seen are clinically meaningful. However, the authors of some studies report thresholds to interpret the results of the scoring tools (for example, by linking scores to symptom severity), so some conclusions can be made.

Conclusion

Any potential benefits of gender-affirming hormones must be weighed against the largely unknown long-term safety profile of these treatments in children and adolescents with gender dysphoria.

Results from 5 uncontrolled, observational studies suggest that, in children and adolescents with gender dysphoria, gender-affirming hormones are likely to improve symptoms of gender dysphoria, and may also improve depression, anxiety, quality of life, suicidality, and psychosocial functioning. The impact of treatment on body image is unclear. All results were of very low certainty using modified GRADE.

Safety outcomes were reported in 5 observational studies. Statistically significant increases in some measures of bone density were seen following treatment with gender-affirming hormones, although results varied by bone region (lumber spine versus femoral neck) and by population (transfemales versus transmales). However, z-scores suggest that bone density remained lower in transfemales and transmales compared with an equivalent cisgender population. Results from 1 study of gender-affirming hormones started during adolescence reported statistically significant increases in blood pressure and body mass index, and worsening of the lipid profile (in transmales) at age 22 years, although longer term studies that report on cardiovascular event rates are required. Adverse events and discontinuation rates associated with gender-affirming hormones were only reported in 1 study, and no conclusions can be made on these outcomes.

This review did not identify sub-groups of patients who may benefit more from gender-affirming hormones.

No cost-effectiveness evidence was found to determine whether gender-affirming hormones are a cost-effective treatment for children and adolescents with gender dysphoria.

3. Methodology

Review questions

The review question(s) for this evidence review are:

1. For children and adolescents with gender dysphoria, what is the clinical effectiveness of treatment with gender-affirming hormones compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention?

2. For children and adolescents with gender dysphoria, what is the short-term and long-term safety of gender-affirming hormones compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention?
3. For children and adolescents with gender dysphoria, what is the cost-effectiveness of gender-affirming hormones compared to one or a combination of psychological support, social transitioning to the desired gender or no intervention?
4. From the evidence selected, are there particular sub-groups of children and adolescents with gender dysphoria that derive comparatively more (or less) benefit from treatment with gender-affirming hormones than the wider population of children and adolescents with gender dysphoria?
5. From the evidence selected,
   (a) what are the criteria used by the research studies to define gender dysphoria, gender identity disorder and gender incongruence of childhood?
   (b) what were the ages at which participants commenced treatment with gender-affirming hormones?
   (c) what was the duration of GnRH analogues treatment?

See appendix A for the full review protocol.

Review process

The methodology to undertake this review is specified by NHS England in their 'Guidance on conducting evidence reviews for Specialised Services Commissioning Products' (2020).

The searches for evidence were informed by the PICO and were conducted on 21 July 2020.

See appendix B for details of the search strategy.

Results from the literature searches were screened using their titles and abstracts for relevance against the criteria in the PICO framework. Full text references of potentially relevant evidence were obtained and reviewed to determine whether they met the inclusion criteria for this evidence review.

See appendix C for evidence selection details and appendix D for the list of studies excluded from the review and the reasons for their exclusion.

Relevant details and outcomes were extracted from the included studies and were critically appraised using a checklist appropriate to the study design. See appendix E and appendix F for individual study and checklist details.

The available evidence was assessed by outcome for certainty using modified GRADE. See appendix G for GRADE Profiles.

4. Summary of included studies

Ten observational studies were included in the evidence review. Seven studies were retrospective observational studies (Allen et al. 2019, Kaltiala et al. 2020, Khatchadourian et al. 2014, Klaver et Al. 2020, Klink et al. 2015, Stoffers et al. 2019, Vlot et al. 2017) and three studies were prospective longitudinal observational studies (Achille et al. 2020, Kuper et al. 2020, Lopez de Lara et al. 2020).

The terminology used in this topic area is continually evolving and is different depending on stakeholder perspectives. In this evidence review we have used the phrase 'people's assigned sex at birth' rather than saying natal or biological sex and 'cross sex hormones' are now referred to as 'gender-affirming hormones'. The research studies may use historical terms which are no longer considered appropriate.

Table 1 provides a summary of these included studies and full details are given in appendix E.

Table 1 Summary of included studies

Study	Population	Intervention and comparison	Outcomes reported
Achille et al. 2020 Prospective longitudinal study Single centre, New York, United States	50 children, adolescents and young adults with gender dysphoria; 17 transfemales and 33 transmales Mean age at baseline was 16.2 years (SD 2.2)	**Intervention** Endocrine interventions (the collective term used for puberty suppression and gender-affirming hormones) were introduced as per Endocrine Society and the World Professional Association for Transgender Health (WPATH) guidelines Puberty suppression was: • GnRH analogue and/or anti-androgens (transfemales) • GnRH analogue or medroxyprogesterone (transmales) Once eligible, gender-affirming hormones were offered, these were: • Oestradiol (transfemales)	**Critical Outcomes** *Impact on mental health* • Depression- The Center for Epidemiologic Studies Depression Scale (CESD-R) • Depression- The Patient Health Questionnaire Modified for Teens (PHQ 9_Modified for Teens) *Impact on quality of life* • Quality of Life Enjoyment and Satisfaction Questionnaire (QLES-Q-SF) **Important Outcomes** *None reported*

Study	Population	Intervention and comparison	Outcomes reported
		• Testosterone (transmales) Doses and formulations not reported After about 12-months treatment ('wave 3'): • 24 people (48%) were on gender-affirming hormones alone • 12 people (24%) were on puberty suppression alone • 11 people (22%) were on both gender-affirming hormones and puberty suppression • 3 people (6%) were on no endocrine intervention **Comparison** No comparison group. Change over time reported	
Allen et al. 2019 Retrospective longitudinal study Single centre, Kansas City, USA	47 adolescents and young adults with gender dysphoria: 14 transfemales and 33 transmales Mean age at administration (start of treatment) 16.5 years	**Intervention** 39 participants received gender-affirming hormones only 8 participants received hormones and a GnRH analogue Mean duration of treatment with gender-affirming hormones was 349 days (range 113 to 1,016) **Comparison** No comparison group. Comparison over time reported	**Critical Outcomes** *Impact on mental health* • Suicidality- Ask Suicide-Screening Questions (ASQ) instrument *Impact on quality of life* • General Well-Being Scale (GWBS) of the Pediatric Quality of Life Inventory **Important Outcomes** *None reported*
Kaltiala et al. 2020	52 adolescents with gender dysphoria: 11 transfemales and 41 transmales.	**Intervention** Hormonal sex assignment treatment – details of	**Critical Outcomes** *Impact on mental health*

Study	Population	Intervention and comparison	Outcomes reported
Retrospective chart review Single centre, Tampere, Finland	Mean age at diagnosis 18.1 years (range 15.2 to 19.9)	intervention not reported, although all patients received gender-affirming hormones. **Comparison** No comparison group. Comparison over time reported	• Need for mental health treatment **Important Outcomes** *Psychosocial Impact* Measure of functioning in different domains of adolescent development, which were: • Living with parent(s)/ guardians • Normative peer contacts • Progresses normatively in school/ work • Has been dating or had steady relationships • Is age-appropriately able to deal with matters outside of the home
Khatchadourian et al. 2014 Retrospective chart review Single centre, Vancouver, Canada	84 young people with gender dysphoria, of whom 63 received gender-affirming hormones. Median age at start of gender-affirming hormones was: • 17.3 years (range 13.7-19.8) for testosterone • 17.9 years (range 13.3-22.3) for oestrogen	**Intervention** Transfemales: Oestrogen (oral micronized 17β-oestradiol) Transmales: Testosterone (injectable testosterone enanthate and/or cypionate) 19 participants (30%) had previously received a GnRH analogue **Comparison** No comparison group. Comparison over time reported.	**Critical Outcomes** *None reported* **Important Outcomes** *Safety:* • Adverse events • Discontinuation rates
Klaver et al. 2020 Retrospective chart review Single centre, Amsterdam, Netherlands	192 people with gender dysphoria who started GnRH analogues before the age of 18 years, and started gender-affirming hormones within 1.5 years of their 22nd birthday.	**Intervention** Oral oestrogen or intramuscular (IM) testosterone **Comparison**	**Critical Outcomes** *None reported* **Important Outcomes** *Safety* • Body mass index (BMI)

Study	Population	Intervention and comparison	Outcomes reported
	Mean age at start of gender-affirming hormones: • Transfemale – 16.4 years (SD 1.1) • Transmale – 16.9 years (SD 1.9)	No comparison group. Comparison over time reported	• Systolic blood pressure • Diastolic blood pressure • Glucose • Insulin • HOMA-IR • Total cholesterol • HDL cholesterol • LDL cholesterol • Triglycerides
Klink et al. 2015 Retrospective longitudinal study Single centre, Amsterdam, Netherlands	34 young people with gender dysphoria who had received GnRH analogues, gender-affirming hormones and gonadectomy. The study included 15 transfemales and 19 transmales; mean age at start of gender-affirming hormones was 16.6 years (SD 1.4) and 16.4 years (SD 2.3) respectively. At the start of gender-affirming hormone treatment, in the transfemale subgroup the median Tanner P was 4 (IQR 2) and the median Tanner G was 12 (IQR 11) In the transmale subgroup the median Tanner B was 5 (IQR 2) and the median Tanner P was 5 (IQR 0)	**Intervention** Transfemales – oral 17-β oestradiol (incremental dosing) Transmales – IM testosterone (Sustanon 250 mg/ml; incremental dosing) Median duration of treatment with gender-affirming hormones for transfemales was 5.8 years (range 3.0 to 8.0) and for transmales was 5.4 years (range 2.8 to 7.8) The GnRH analogue was subcutaneous (SC) triptorelin 3.75 mg every 4 weeks No details of gonadectomy reported **Comparison** No comparison group. Comparison over time reported.	**Critical Outcomes** None **Important Outcomes** *Safety* • Bone mineral apparent density (BMAD) • Bone mineral density (BMD) Measures reported at 3 timepoints: start of GnRH analogue treatment, start of gender-affirming hormone treatment and age 22 years.
Kuper et al. 2020 Prospective longitudinal study	Children and adolescents with gender dysphoria (9 to18 years), n=148, of whom: • 25 received puberty suppression only	**Intervention** Gender-affirming hormones, guided by Endocrine Society Clinical Practice Guidelines	**Critical Outcomes** *Impact on mental health* • Depression- Quick Inventory of Depressive

Study	Population	Intervention and comparison	Outcomes reported
Single centre, Texas, USA	• 93 received gender-affirming hormone therapy only • 30 received both Mean age 14.9 years	**Comparison** No comparison group. Comparison over time reported.	Symptoms (QIDS), self-reported • Depression- QIDS, clinician-reported • Anxiety- Screen for Child Anxiety Related Emotional Disorders (SCARED) • Panic- specific questions from SCARED • Generalised anxiety-specific questions from SCARED • Social anxiety - specific questions from SCARED • Separation anxiety-specific questions from SCARED • School avoidance-specific questions from SCARED **Important Outcomes** *Impact on body image* • Body Image Scale (BIS)
Lopez de Lara et al. 2020 Prospective analytical study Single centre, Madrid, Spain	23 adolescents with gender dysphoria: 7 transfemales and 16 transmales. Mean age at baseline was 16 years (range 14 to 18)	**Intervention** Gender-affirming hormones: • Oral oestradiol • Intramuscular testosterone Participants had previously received GnRH analogues in the intermediate pubertal stages (Tanner 2 to 3). Participants were assessed twice: • pre-treatment (T0), • after 12 months treatment with gender-affirming hormones (T1)	**Critical Outcomes** *Impact on gender dysphoria* • Utrecht Gender Dysphoria Scale (UGDS) *Impact on mental health* • Depression- Beck Depression Inventory II (BDI-II) • Anxiety- State-Trait Anxiety Inventory **Important Outcomes** *Psychosocial Impact* • Family functioning-Family APGAR test • Patient strengths and difficulties-Strengths and Difficulties Questionnaire,

Study	Population	Intervention and comparison	Outcomes reported
		Comparison No comparison group. Comparison over time reported.	Spanish Version (SDQ-Cas).
Stoffers et al. 2019 Retrospective chart review Single centre, Leiden, Netherlands	62 transmales with gender dysphoria. Patients had received a GnRH analogue and more than 6 months of testosterone treatment. Median age at start of testosterone was 17.23 years (range 14.9 to 18.4) Median treatment duration was 12 months (range 5 to 33) Change over time	**Intervention** Testosterone intramuscular injections (Sustanon 250 mg). Dose was titrated to a maintenance dose of 125 mg every 2 weeks. Participants who started GnRH analogues at 16 years or older had their dose increased more rapidly. Some participants chose to receive testosterone every 3-4 weeks, and participants could switch to transdermal preparations if needed. **Comparison** No comparison group. Comparison over time reported.	**Critical Outcomes** None **Important Outcomes** *Safety* • Body mass index (BMI) • Blood pressure • BMD • Acne • Liver enzymes • Creatinine • Urea • HbA1c
Vlot et al. 2017 Retrospective chart review Single centre, Amsterdam, Netherlands	70 children and adolescents with gender dysphoria Median age at baseline – • 13.5 years (11.5-18.3) for transfemales • 15.1 years (range 11.7-18.6) for transmales Comparison is change over time. 24 month follow-up.	**Intervention** Oestrogen or testosterone (had previously received triptorelin for puberty suppression) **Comparison** No comparison group. Comparison over time reported.	**Critical Outcomes** None **Important Outcomes** *Safety* • Bone mineral apparent density (BMAD)

5. Results

In children and adolescents with gender dysphoria, what is the clinical effectiveness of gender-affirming hormones compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention?

Outcome	Evidence statement
Clinical Effectiveness	

Critical outcomes	
Impact on gender dysphoria **Certainty of evidence: very low**	This is a critical outcome because gender dysphoria in children and adolescents is associated with significant distress and problems with functioning. One uncontrolled, prospective, observational study (Lopez de Lara et al. 2020) provided evidence relating to the impact on gender dysphoria, measured using the Utrecht Gender Dysphoria Scale (UGDS) score during the first year of treatment with gender-affirming hormones. The UGDS is a validated, screening tool for both adolescents and adults, used to assess gender dysphoria. It consists of 12 items, to be answered on a 1- to 5-point scale, resulting in a sum score between 12 and 60. The authors state that the cut-off point to identify gender dysphoria is 40 points. The higher the UGDS score the greater the gender dysphoria. In this study (n=23), the mean (±SD) UGDS score was statistically significantly reduced (improved) from 57.1 (±4.1) points at baseline to 14.7 points (±3.2) at 12 months (p<0.001). A UGDS score below 40 suggests an absence of gender dysphoria **(VERY LOW)**. **This study provides very low certainty evidence that gender-affirming hormones statistically significantly improve gender dysphoria from baseline to 12 months follow-up. The mean UGDS score was below the threshold for gender dysphoria at follow-up.**
Impact on mental health: depression **Certainty of evidence: very low**	This is a critical outcome because depression may impact on social, occupational, or other areas of functioning in children and adolescents. Four observational studies (Achille et al. 2020; Kaltiala et al. 2020; Kuper et al. 2020; Lopez de Lara et al. 2020) provided evidence relating to the impact on depression in children and adolescents with gender dysphoria, with follow-up of around 12 months. Five different outcome measures for depression were reported. **Beck Depression Inventory (BDI-II)** One uncontrolled, prospective, analytical study (Lopez de Lara et al. 2020) reported the change in BDI-II. The BDI-II is a valid, reliable, and widely used tool for assessing depressive symptoms. There are no specific scores to categorise depression severity, but it is suggested that 0 to 13 is minimal symptoms, 14 to 19 is mild depression, 20 to 28 is moderate depression, and severe depression is 29 to 63. In Lopez de Lara et al. 2020 (n=23) the mean (±SD) BDI-II score was statistically significantly reduced (improved) from 19.3 (±5.5) points at baseline to 9.7 (±3.9) points at 12 months (p<0.001) **(VERY LOW)**. **Center for Epidemiologic Studies Depression (CESD-R)** One uncontrolled, prospective, longitudinal study (Achille et al. 2020) reported the change in CESD-R scale. The CESD-R is a valid, widely used tool to assess depressive symptoms. Total score ranges from 0 to 60, with higher scores indicating more depressive symptoms. There are no specific scores to categorise depression severity, although the authors of the study suggest that a total CESD-R score less than 16 suggests no clinical depression.

	In Achille et al. 2020 (n=50), the mean CESD-R score statistically significantly reduced (improved) from 21.4 points at baseline to 13.9 points at about 12 months follow-up (p<0.001; standard deviation not reported) **(VERY LOW)**. **Patient Health Questionnaire (PHQ 9) Modified for Teens** One uncontrolled, prospective, longitudinal study (Achille et al. 2020) reported the change in PHQ 9_Modified for Teens score. The PHQ 9_Modified for Teens is a validated tool to assess depression, dysthymia and suicide risk. The tool consists of 9 questions scored from 0 to 3 (total score 0 to 27), plus an additional 4 questions that are not scored. A score of 0 to 4 suggests no or minimal depressive symptoms, 5 to 9 mild, 10 to 14 moderate, 15 to 19 moderately severe, and 20-27 severe symptoms. In Achille et al. 2020 (n=50), the mean PHQ 9_Modified for Teens score statistically significantly reduced (improved) from baseline to around 12 months follow-up, although absolute scores were not reported numerically (p<0.001). From the visual representation of results, the PHQ-9_Modified for Teens score is about 9 at baseline and about 5 at final follow-up **(VERY LOW)**. **Quick Inventory of Depressive Symptoms (QIDS)** One uncontrolled, prospective, longitudinal study (Kuper et al. 2020) reported the change in QIDS, clinician-reported and self-reported. Both the clinician-reported and self-reported QIDS are validated tools to assess depressive symptoms. The tool consists of 16 items, with the highest score for 9 domains (sleep, weight, psychomotor changes, depressed mood, decreased interest, fatigue, guilt, concentration, and suicidal ideation) added to give a total score ranging from 0 to 27. A score of 0 to 5 suggests no depression, 6 to 10 mild symptoms, 11 to 15 moderate symptoms, 16 to 20 severe symptoms, and 21 to 27 very severe symptoms. In Kuper et al. 2020 (n=105), the mean (±SD) QIDS self-reported score was 9.6 points (±5.0) at baseline and 7.4 (±4.5) after 10.9 months of treatment with gender-affirming hormones (no statistical analysis reported). The mean (±SD) QIDS clinician-reported score was 5.9 points (±4.1) at baseline and 6.0 (±3.8) after 10.9 months of treatment with gender-affirming hormones (no statistical analysis was reported) **(VERY LOW)**. **Participants needing treatment for depression** One observational study (Kaltiala et al. 2020) reported the proportion of participants needing treatment for depression before or during the initial assessment and during the 12-month follow-up period after starting gender-affirming hormones. In Kaltiala et al. 2020 (n=52), statistically significantly fewer participants needed treatment for depression during the 12-month 'real life' phase (15%, 8/52) compared with before or during the assessment (54%, 28/52; p<0.001). No details of what treatments for depression the participants received are reported **(VERY LOW)**.

	These studies provide very low certainty evidence that during treatment with gender-affirming hormones depression is reduced from baseline to about 12 months follow-up. However, most participants had mild symptoms at the start of treatment.
Impact on mental health: anxiety **Certainty of evidence: very low**	This is a critical outcome because anxiety may impact on social, occupational, or other areas of functioning in children and adolescents. Three observational studies (Kaltiala et al. 2020; Kuper et al. 2020; Lopez de Lara et al. 2020) provided evidence relating to the impact on anxiety in children and adolescents with gender dysphoria. **State-Trait Anxiety Inventory (STAI)** One uncontrolled, prospective, analytical study (Lopez de Lara et al. 2020) reported the change in STAI scores. STAI is a validated and commonly used measure of trait and state anxiety. It has 20 items and can be used in clinical settings to diagnose anxiety and to distinguish it from depressive illness. Higher scores indicate greater anxiety. In Lopez de Lara et al. 2020 (n=23), the mean (±SD) STAI-State subscale was statistically significantly reduced (improved) with gender-affirming hormones from 33.3 points (±9.1) at baseline to 16.8 points (±8.1) at 12 months (p<0.001). The mean STAI-Trait subscale scores also statistically significantly reduced (improved) from 33.0 points (±7.2) at baseline to 18.5 points (±8.4) at 12 months (p<0.001) **(VERY LOW)**. **Screen for Child Anxiety Related Emotional Disorders (SCARED)** One uncontrolled, prospective, longitudinal study (Kuper et al. 2020) reported anxiety symptoms using the SCARED questionnaire. Other anxiety-related symptoms using specific questions from the SCARED questionnaire were also reported: panic, generalised anxiety, social anxiety, separation anxiety and school avoidance. SCARED is a validated, 41-point questionnaire, with each item scored 0 to 2. A total score of 25 or more is suggestive of anxiety disorder, with scores above 30 being more specific. Certain scores for specific questions may indicate the presence of other anxiety-related disorders: • A score of 7 or more in questions related to panic disorder or significant somatic symptoms may indicate the presence of these. • A score of 9 or more in questions related to generalised anxiety disorder may indicate the presence of this. • A score of 5 or more in questions related to separation anxiety may indicate the presence of this. • A score of 8 or more in questions related to social anxiety disorder may indicate the presence of this. • A score of 3 or more in questions related to significant school avoidance may indicate the presence of this. In Kuper et al. 2020 (n=80 to 82, varies by outcome), small reductions were seen in anxiety, panic, generalised anxiety, social anxiety and separation anxiety and school avoidance symptoms (measured using the SCARED questionnaire) from baseline to follow-up (mean duration of treatment 10.9 months). The statistical significance of these findings are unknown as no statistical analyses were reported **(VERY LOW)**.

	Participants needing treatment for anxiety One observational study (Kaltiala et al. 2020) reported the proportion of participants needing treatment for anxiety before or during initial assessment and during the 12-month follow-up period after starting gender-affirming hormones. In Kaltiala et al. 2020 (n=52), statistically significantly fewer participants needed treatment for anxiety during the 12-month 'real life' phase (15%, 8/52) compared with before or during the assessment (48%, 25/52; p<0.001). No details of what treatments for anxiety the participants received are reported **(VERY LOW)**. **These studies provide very low certainty evidence that during treatment with gender-affirming hormones anxiety symptoms may be reduced from baseline to around 12 months follow-up.**
Impact on mental health: suicidality and self-injury **Certainty of evidence: very low**	These are critical outcomes because self-harm and thoughts of suicide have the potential to result in significant physical harm and, for completed suicides, the death of the young person. Four observational studies (Achille et al. 2020; Allen et al. 2019; Kaltiala et al. 2020; Kuper et al. 2020) provided evidence relating to suicidal ideation in children and adolescents with gender dysphoria, with an average follow-up of around 12 months. **Ask Suicide-Screening Questions (ASQ)** One uncontrolled, retrospective, longitudinal study (Allen et al. 2019) reported the change in ASQ. This is a 4-item dichotomous (yes/no) response measure designed to identify risk of suicide. The authors of Allen et al. 2019 amended 1 question in the ASQ ("*Have you ever tried to kill yourself?*") by prefacing it with "*In the past few weeks . . .*" as they were not investigating lifetime incidence. A response of 'no' is scored as 0 and a response of 'yes' is scored as 1; each item is summed to give an overall score for suicidal ideation ranging from 0 to 4. A person is considered to have screened positive if they answer 'yes' to any item with higher scores indicating higher levels of suicidal ideation. In Allen et al. 2019 (n=39), the adjusted mean (±SE) ASQ score statistically significantly reduced from 1.11 points (±0.22) at baseline to 0.27 points (±0.12) after a mean duration of treatment of about 12 months (p<0.001) **(VERY LOW)**. **PHQ 9_Modified for Teens (additional questions for suicidal ideation)** One uncontrolled, prospective, longitudinal study (Achille et al. 2020) reported the change in suicidal ideation measured using additional questions from the PHQ 9_Modified for Teens. This is a validated tool to assess depression, dysthymia and suicide risk (see above for detailed description). In addition to the 9 scored questions, the PHQ 9_Modified Teens asked 4 additional questions relating to suicidal ideation and difficulty dealing with problems of life. Responses to the PHQ 9_Modified for Teens were used to determine if the participant had suicidal ideation or not, but specific details of how this was determined are not reported.

	In Achille et al. 2020 (n=50), 10% (5/50) of participants had suicidal ideation at baseline and 6% (3/50) had suicidal ideation after about 12 months treatment with gender-affirming hormones (no statistical analysis reported) **(VERY LOW)**. **Suicidality and non-suicidal self-injury** One uncontrolled, prospective, longitudinal study (Kuper et al. 2020) reported on suicidal ideation, suicide attempts and non-suicidal self-injury, although it was unclear how and when this outcome was measured. In Kuper et al. 2020 (n=130), 25% of participants reported suicidal ideation 1 month before the initial assessment and 38% reported this during the follow-up period (no statistical analysis reported). Suicide attempts were reported in 2% of participants at 3 months before the initial assessment and 5% during follow-up. Self-injury was reported in 10% of participants at 3 months before the initial assessment and 17% during follow-up. No statistical analysis was reported for any outcomes. Mean duration of gender-affirming hormone treatment was 10.9 months **(VERY LOW)**. **Participants needing treatment for suicidality or self-harm** One observational study (Kaltiala et al. 2020) reported the proportion of participants requiring treatment for suicidality or self-harm before or during initial assessment and during the 12-month follow-up period after starting gender-affirming hormones. In Kaltiala et al. 2020 (n=52) statistically significantly fewer participants needed treatment for suicidality or self-harm during the 12-month 'real life' phase (4%, 2/52) compared with before or during the assessment (35%, 18/52; p<0.001). No details of what treatments for suicidal ideation or self-harm the participants received are reported **(VERY LOW)**. **These studies provide very low certainty evidence that gender-affirming hormones may reduce suicidality from baseline to about 12 months follow-up. However, results are inconsistent and it is difficult to draw conclusions.**
Impact on mental health: other **Certainty of evidence: very low**	This is a critical outcome because mental health problems may impact on social, occupational, or other areas of functioning in children and adolescents. One observational study (Kaltiala et al. 2020) reported the proportion of participants needing treatment for either psychotic symptoms or psychosis, substance abuse, autism, attention deficit hyperactivity disorder (ADHD) or eating disorders before or during initial assessment and during the 12-month follow-up period after starting gender-affirming hormones. In Kaltiala et al. 2020 (n=52) there was no statistically significant difference in the number of people needing treatment for either psychotic symptoms / psychosis, substance abuse, autism, attention deficit hyperactivity disorder (ADHD) or eating disorders during the 12-month 'real life' phase compared with before or during the assessment.

	No details of which specific treatments the participants received are reported **(VERY LOW)**. **This study provides very low certainty evidence on the need for treatment for either psychotic symptoms or psychosis, conduct problems or antisocial behaviour, substance abuse, autism, attention deficit hyperactivity disorder (ADHD) or eating disorders during treatment with gender-affirming hormones. No conclusions could be drawn.**
Impact on quality of life score **Certainty of evidence: very low**	This is a critical outcome because gender dysphoria in children and adolescents may be associated with a significant reduction in health-related quality of life. Two uncontrolled longitudinal studies Achille et al. 2020; Allen et al. 2019) provided evidence relating to quality of life in children and adolescents with gender dysphoria. **Quality of Life Enjoyment and Satisfaction Questionnaire (QLES-Q-SF)** One uncontrolled, prospective, longitudinal study (Achille et al. 2020) reported the change in QLES-Q-SF scores from baseline to about 12 months of treatment with gender-affirming hormones. QLES-Q-SF is a validated questionnaire, consisting of 15 questions that rate quality of life on a scale of 1 (poor) to 5 (very good). In Achille et al. 2020 (n=50), the mean QLES-Q-SF score was statistically significantly reduced from baseline to about 12 months ($p<0.001$). However, absolute scores are not reported numerically **(VERY LOW)**. **General Well-Being Scale (GWBS) of the Paediatric Quality of Life Inventory** One uncontrolled, retrospective, longitudinal study (Allen et al. 2019) reported the change in adjusted mean GWBS of the Paediatric Quality of Life Inventory score from baseline to about 12 months of treatment with gender-affirming hormones. The GWBS of the Paediatric Quality of Life Inventory contains 7 items that measure two dimensions: general wellbeing (6 items) and general health (1 item). Each item is scored from 0 to 4, and the total score is linearly transformed to a 0 to 100 scale. Higher scores reflect fewer perceived problems and greater well-being. In Allen et al. 2019 (n=47), the adjusted mean (±SE) GWBS of the Paediatric Quality of Life Inventory score was statistically significantly increased (improved) from 61.70 (±2.43) points at baseline to 70.23 (±2.15) points at about 12 months ($p<0.002$) **(VERY LOW)**. **This study provides very low certainty evidence that gender-affirming hormones statistically significantly improve quality of life and well-being from baseline to 12 months follow-up.**
Important outcomes	
Impact on body image	This is an important outcome because some children and adolescents with gender dysphoria may want to take steps to suppress features of

Certainty of evidence: very low	their physical appearance associated with their sex assigned at birth or accentuate physical features of their desired gender. One uncontrolled, prospective, longitudinal study (Kuper et al. 2020) provided evidence relating to the impact on body image in children and adolescents with gender dysphoria who started treatment with gender-affirming hormones (median duration 10.9 months; range 1 to 18), measured by the change in Body Image Scale (BIS) score. BIS is a validated 30-item scale covering 3 aspects: primary, secondary and neutral body characteristics. Higher scores represent a higher degree of body dissatisfaction. In Kuper et al. 2020 (n=86), the mean (±SD) BIS score was 70.7 points (±15.2) at baseline and 51.4 points (±18.3) at follow-up (no statistical analysis reported) **(VERY LOW)**. **This study provides very low certainty evidence on the effects of gender-affirming hormones on body image during treatment with gender-affirming hormones (mean duration of treatment 10.9 months). No conclusions could be drawn.**
Psychosocial impact **Certainty of evidence: very low**	This is an important outcome because gender dysphoria in children and adolescents is associated with internalising and externalising behaviours, and emotional and behavioural problems which may impact on social and occupational functioning. Two uncontrolled, observational studies (Kaltiala et al. 2020; Lopez de Lara et al. 2020) provided evidence related to psychosocial impact in children and adolescents with gender dysphoria. **Family APGAR (Adaptability, Partnership, Growth, Affection and Resolve) test** One uncontrolled, prospective, analytical study (Lopez de Lara et al. 2020) reported the Family APGAR test. The Family APGAR test is a 5-item questionnaire, with higher scores indicating better family functioning. The authors reported the following interpretation of the test: functional, 17 to 20 points; mildly dysfunctional, 16 to 13 points; moderately dysfunctional, 12 to 10 points; severely dysfunctional, <9 points. In Lopez de Lara et al. 2020 (n=23), the mean Family APGAR test score was unchanged from baseline (17.9 points) to 12-month follow-up (18.0 points; no statistical analysis or standard deviations reported) **(VERY LOW)**. **Strengths and Difficulties Questionnaire (SDQ)** One uncontrolled, prospective, analytical study (Lopez de Lara et al. 2020) reported on behaviour using the Strengths and Difficulties Questionnaire (SDQ, Spanish version). The SDQ includes 25-items covering emotional symptoms, conduct problems, hyperactivity/ inattention, peer relationship problems and prosocial behaviour. The authors state that a score of more than 20 suggests having a behavioural disorder (normal 0 to 15, borderline 16 to 19, abnormal 20 to 40).

	In Lopez de Lara et al. 2020 (n=23), the mean (±SD) SDQ score was statistically significantly reduced (improved) from 14.7 points (±3.3) at baseline to 10.3 points (±2.9) at 12-month follow-up (p<0.001) **(VERY LOW)**. **Psychosocial functioning** One uncontrolled, retrospective chart review (Kaltiala et al. 2020) reported various markers of functioning in adolescent development, covering living arrangements, peer contacts, school or work progress, relationships, and ability to cope with matters outside the home. These measures were reported during the gender identity assessment and at about 12 months after starting gender-affirming hormones (referred to as the 'real-life phase'). In Kaltiala et al. 2020 (n=52), from the gender identity assessment to the 12-month follow-up period: • statistically significantly fewer participants were living with parents or guardians (73% versus 40%, p=0.001) • statistically significantly fewer participants had normal peer contacts (89% versus 81%, p<0.001) • there was no statistically significant difference in progress in school or work (64% versus 60%, p=0.69) • there was no statistically significant difference in the number of participants who had been dating or in steady relationships (62% versus 58%, p=0.51) • there was no statistically significant difference in the participant's ability to cope with matters outside of the home (81% versus 81%, p=1.00) **(VERY LOW)**. **These studies provide very low certainty evidence that gender-affirming hormones statistically significantly improve behavioural problems (measured by SDQ score). However, the SDQ score was in the 'normal' range at baseline and at 12-month follow up. There was no significant impact on other measures of psychosocial functioning.**
Engagement with health care services	This is an important outcome because patient engagement with health care services will impact on their clinical outcomes. No evidence was identified.
Impact on extent of and satisfaction with surgery	This is an important outcome because some children and adolescents with gender dysphoria may proceed to transitioning surgery. No evidence was identified.
De-transition	This is an important outcome because there is uncertainty about the short- and long-term safety and adverse effects of gender-affirming hormones in children and adolescents with gender dysphoria No evidence was identified.

Abbreviations: APGAR: Adaptability, Partnership, Growth, Affection and Resolve; ASQ: Ask Suicide-Screening Questions; BDI-II: Beck Depression Inventory II; BIS: Body Image Scale; CESD-R: Center for Epidemiologic Studies Depression; GWBS: General Well-Being Scale; p: p-value; PHQ 9_Modified for Teens: Patient Health Questionnaire Modified for Teens; QIDS: Quick Inventory of Depressive Symptoms; QLES-Q-SF: Quality of Life Enjoyment and Satisfaction Questionnaire; SCARED: Screen for Child Anxiety Related Emotional Disorders;

SD: standard deviation; SE: standard error; SDQ: Strengths and Difficulties Questionnaire; STAI: State-Trait Anxiety Inventory; UGDS: Utrecht Gender Dysphoria Scale.

In children and adolescents with gender dysphoria, what is the short-term and long-term safety of gender-affirming hormones compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention?

Outcome	Evidence statement
Safety	
Change in bone density: lumbar spine **Certainty of evidence: very low**	This is an important outcome because childhood and adolescence is a key time for bone development and gender-affirming hormones may affect bone development, as shown by changes in lumbar spine bone density. Three uncontrolled, observational studies (2 retrospective and 1 prospective) provided evidence related to bone density: lumbar spine in children and adolescents with gender dysphoria. This was reported as either bone mineral density (BMD), bone mineral apparent density (BMAD), or both. One study reported change in bone density from start of treatment with gender-affirming hormones to age 22 years (Klink et al. 2015). Two studies reported change in bone density from start of gender-affirming hormones up to 24-month follow-up (Stoffers et al. 2019 and Vlot et al. 2017). All participants had previously been treated with a GnRH analogue. All outcomes were reported separately for transfemales and transmales; also see subgroups table below. **Bone mineral apparent density (BMAD)** Two uncontrolled, observational studies reported change in lumbar BMAD (Klink et al. 2015; Vlot et al. 2017). BMAD is a size adjusted value of BMD, incorporating bone size measurements using a UK reference population of growing cis-gender adolescents (up to age 17 years). BMAD is used to correct for height and height gain and may provide a more accurate estimate of bone density in growing adolescents. BMAD was reported as g/cm^3 and as z-scores. Z-scores report how many standard deviations from the mean a measurement sits. A z-score of 0 is equal to the mean, a z-score of -1 is equal to 1 standard deviation below the mean, and a z-score of +1 is equal to 1 standard deviation above the mean. A cis-gender population was used to calculate the bone density z-score, meaning transfemales were compared with cis-males and transmales were compared with cis-females. In Klink et al. 2015 (n=34): • There was no statistically significant difference in lumbar spine BMAD z-score from starting gender-affirming hormones to age 22 years in transfemales. • The z-score for lumbar spine BMAD was statistically significantly higher at age 22 years compared with the start of gender-affirming hormones in transmales (z-score [±SD]: start of hormones -0.50 [±0.81], age 22 years -0.033 [±0.95], p=0.002).

	• Actual lumbar spine BMAD values in g/cm^3 were statistically significantly higher at age 22 years compared with the start of gender-affirming hormones in transfemales and transmales **(VERY LOW)**. In Vlot et al. 2017 (n=70): • The z-score for lumbar spine BMAD in transfemales with a bone age of <15 years was statistically significantly higher at 24-month follow-up compared with start of gender-affirming hormones (z-score [range]: start of hormones -1.52 [-2.36 to 0.42], 24-month follow-up -1.10 [-2.44 to 0.69], p≤ 0.05). Statistically significant improvements in z-score for lumbar spine BMAD in transfemales with a bone age of ≥15 years were also seen (z-score [range]: start of hormones -1.15 [-2.21 to 0.08], 24-month follow-up -0.66 [-1.66 to 0.54], p≤ 0.05). • The z-score for lumbar spine BMAD in transmales with a bone age of <14 years was statistically significantly higher at 24-month follow-up compared with start of gender-affirming hormones (z-score [range]: start of hormones -0.84 [-2.2 to 0.87], 24-month follow-up -0.15 [-1.38 to 0.94], p≤ 0.01). Statistically significant improvements in z-score for lumbar spine BMAD in transmales with a bone age of ≥14 years were also seen (z-score [range]: start of hormones -0.29 [-2.28 to 0.90], 24-month follow-up -0.06 [-1.75 to 1.61], p≤ 0.01). • Actual lumbar spine BMAD values in g/cm^3 were statistically significantly higher at 24-month follow-up compared with start of gender-affirming hormones in transfemales and transmales of all bone ages **(VERY LOW)**. **Bone mineral density (BMD)** Two uncontrolled, observational studies reported change in lumbar BMD (Klink et al. 2015; Stoffers et al. 2019). BMD was determined using dual energy x-ray absorptiometry (DXA-scan; HologicQDR4500, Hologic). BMD was reported as g/cm^2 and as z-scores – see BMAD above for more details). In Klink et al. 2015 (n=34): • There was no statistically significant difference in lumbar spine BMD z-score from starting gender-affirming hormones to age 22 years in transfemales or transmales. • Actual lumbar spine BMD values in g/cm^2 were statistically significantly higher at age 22 years compared with the start of gender-affirming hormones in transfemales and transmales **(VERY LOW)**. In Stoffers et al. 2019 (n=62 at 6-month follow-up; n=15 at 24-month follow-up): • There was no statistically significant difference in lumbar spine BMD z-score in transmales from starting gender-affirming hormones to any timepoint (6, 12 and 24 months). • There was also no statistically significant difference in actual lumbar spine BMD values in g/cm^2 from starting gender-affirming hormones to any timepoint (6, 12 and 24 months) **(VERY LOW)**.

	These studies provide very low certainty evidence that lumber spine bone density (measured by BMAD) increases during treatment with gender-affirming hormones (from baseline to follow-up of 2 to 5 years). Z-scores at the end of follow-up suggest the average lumbar spine bone density was generally lower than the equivalent cisgender population (transfemales compared with cis-males and transmales compared with cis-females). The results for bone density (measured by BMD) were inconsistent.
Change in bone density: femoral neck **Certainty of evidence: very low**	This is an important outcome because childhood and adolescence is a key time for bone development and gender-affirming hormones may affect bone development, as shown by changes in femoral neck bone density. Three uncontrolled, observational studies (2 retrospective and 1 prospective) provided evidence related to bone density: femoral neck in children and adolescents with gender dysphoria. This was reported as either bone mineral density (BMD), bone mineral apparent density (BMAD), or both. One study reported change in bone density from start of gender-affirming hormones to age 22 years (Klink et al. 2015). Two studies reported change in bone density from start of gender-affirming hormones up to 24-month follow-up (Stoffers et al. 2019 and Vlot et al. 2017). All participants had previously been treated with a GnRH analogue. All outcomes were reported separately for transfemales and transmales; also see subgroups table below. **Bone mineral apparent density (BMAD)** Two uncontrolled, observational studies reported change in femoral neck BMAD (Klink et al. 2015; Vlot et al. 2017). See above for more details on BMAD. In Klink et al. 2015 (n=34): • The z-score for femoral neck BMAD was reported for the start of gender-affirming hormones but not at age 22 years in transfemales or transmales. No statistical analysis reported. • In transfemales there was no statistically significant difference in actual femoral neck BMAD values in g/cm^3 at age 22 years compared with start of gender-affirming hormones. In transmales actual lumbar spine BMAD values in g/cm^3 were statistically significantly higher at age 22 years compared with start of gender-affirming hormones (mean [±SD]: start of hormones 0.31 [±0.04], age 22 years 0.33 [±0.05], p=0.010) **(VERY LOW)**. In Vlot et al. 2017 (n=70): • In transfemales (all bone ages), there was no statistically significant difference in femoral neck BMAD z-score from start of gender-affirming hormones to 24-month follow-up. • The z-score for femoral neck BMAD in transmales with a bone age of <14 years was statistically significantly higher at 24-month follow-up compared with start of gender-affirming hormones (z-score [range]: start of hormones -0.37 [-2.28 to 0.47], 24-month follow-up -0.37 [-2.03 to 0.85], p≤0.01). Statistically significant improvements in z-score for lumbar spine BMAD in transmales with a bone age of ≥14 years were also

	seen (z-score [range]: start of hormones -0.27 [-1.91 to 1.29], 24-month follow-up 0.02 [-2.1 to 1.35], p≤0.05). • In transfemales of all bone ages, there was no statistically significant change in actual femoral neck BMAD values in g/cm^3 from start of gender-affirming hormones to 24-month follow-up. In transmales of all bone ages, actual femoral neck BMAD values in g/cm^3 were statistically significantly higher at 24-month follow-up compared with start of gender-affirming hormones **(VERY LOW)**. **Bone mineral density (BMD)** Two uncontrolled, observational studies reported change in femoral neck BMD (Klink et al. 2015; Stoffers et al. 2019). See above for more details on BMD. In Klink et al. 2015 (n=34): • In transfemales, there was no statistically significant difference in femoral neck BMD z-score from start of gender-affirming hormones to age 22 years. In transmales, femoral neck BMD z-score was statistically significantly higher at age 22 years compared with start of gender-affirming hormones (z-score [SD]: start of hormones -0.35 [0.79], age 22 years -0.35 [0.74], p=0.006). • Actual femoral neck BMD values in g/cm^2 were statistically significantly higher at age 22 years compared with start of gender-affirming hormones in transfemales and transmales **(VERY LOW)**. In Stoffers et al. 2019 (n=62 at 6-month follow-up; n=15 at 24-month follow-up): • there was no statistically significant difference in right or left femoral neck BMD z-score in transmales, from the start of gender-affirming hormones to any timepoint (6, 12 and 24 months). • There was also no statistically significant difference in transmales in right or left actual femoral neck BMD values in g/cm^2 from start of gender-affirming hormones to any timepoint (6, 12 and 24 months) **(VERY LOW)**. **These studies provide very low certainty evidence that during treatment with gender-affirming hormones from baseline to follow-up of 2 to 5 years, femoral neck bone density (measured by BMAD) was unchanged in transfemales but was statistically significantly increased in transmales (although the absolute change was small). Z-scores at the end of follow-up suggest that average femoral neck bone density was lower in both transfemales and transmales than in the equivalent cisgender population (transfemales compared with cis-males and transmales compared with cis-females). The results for bone density (measured by BMD) were inconsistent.**
Change in clinical parameters: glucose, insulin and HbA1c	This is an important outcome because the effect of gender-affirming hormones on insulin sensitivity and cardiovascular risk in children and adolescents with gender dysphoria is unknown.

Certainty of evidence: very low	Two uncontrolled, retrospective chart reviews (Klaver et al. 2020; Stoffers et al. 2019) provided evidence on glucose, insulin and HbA1c. All outcomes were reported separately for transfemales and transmales; also see subgroups table below. **Glucose levels, insulin levels and insulin resistance** One retrospective chart review (Klaver et al. 2020) reported non-comparative evidence on the change in glucose levels, insulin levels and insulin resistance (measured using Homeostatic Model Assessment of Insulin Resistance [HOMA-IR]) between starting gender-affirming hormones and age 22 years. In Klaver et al. 2020 (n=192): • There was no statistically significant change in glucose levels, insulin levels and insulin resistance in transfemales. • There was no statistically significant change in glucose levels in transmales. • There was a statistically significant decrease in insulin levels in transmales (mean change [95% CI] -2.1 mU/L [-3.9 to -0.3], p<0.05; mean insulin level at 22 years [95% CI] 8.6 mU/L [6.9 to 10.2]). • There was a statistically significant decrease in insulin resistance in transmales (HOMA-IR; mean change [95% CI] -0.5 [-1.0 to -0.1], p<0.05; mean HOMA-IR at 22 years [95% CI] 1.8 [1.4 to 2.2]) **(VERY LOW)**. **HbA1c** One retrospective chart review (Stoffers et al. 2019; n=62) reported non-comparative evidence on the change in HbA1c in transmales between starting gender-affirming hormones and 24-month follow-up. There was no statistically significant change in HbA1c **(VERY LOW)**. **These studies provide very low certainty evidence that gender-affirming hormones do not affect HbA1c, glucose levels, insulin levels and insulin resistance.**
Change in clinical parameters: lipids **Certainty of evidence: very low**	This is an important outcome because the effect of gender-affirming hormones on lipid profiles and cardiovascular risk in children and adolescents with gender dysphoria is unknown. One retrospective chart review (Klaver et al. 2020) provided non-comparative evidence on the change in lipids (total cholesterol, HDL cholesterol, LDL cholesterol and triglycerides) between starting gender-affirming hormones and age 22 years. All outcomes were reported separately for transfemales and transmales; also see subgroups table below. In Klaver et al. 2020 (n=192): • There was no statistically significant change in total cholesterol, HDL cholesterol and LDL cholesterol in transfemales. • There was a statistically significant decrease (improvement) in triglycerides in transfemales (mean change [95% CI] +0.2 mmol/L [0.0 to 0.5], p<0.05; mean triglyceride level at 22 years [95% CI] 1.1 mmol/L [0.9 to 1.4]). • There was a statistically significant increase in total cholesterol in transmales (mean change [95% CI] +0.4 mmol/L [0.2 to 0.6],

	p<0.001; mean total cholesterol at 22 years [95% CI] 4.6 mmol/L [4.3 to 4.8]). • There was a statistically significant decrease (worsening) in HDL cholesterol (mean change in transmales [95% CI] -0.3 mmol/L [-0.4 to -0.1], p<0.001; mean HDL cholesterol at 22 years [95% CI] 1.3 mmol/L [1.2 to 1.3]). • There was a statistically significant increase (worsening) in LDL cholesterol in transmales (mean change [95% CI] +0.4 mmol/L [0.2 to 0.6], p<0.001; mean LDL cholesterol at 22 years [95% CI] 2.6 mmol/L [2.4 to 2.8]). • There was a statistically significant increase (worsening) in triglycerides in transmales (mean change [95% CI] +0.5 mmol/L [0.3 to 0.7], p<0.001; mean triglyceride level at 22 years [95% CI] 1.3 mmol/L [1.1 to 1.5]) **(VERY LOW)**. **This study provides very low certainty evidence that gender-affirming hormones do not affect lipid profiles in transfemales. In transmales, there was a small but statistically significant worsening in cholesterol levels from start of gender-affirming hormone treatment to age 22 years, but mean cholesterol and triglyceride levels were within the UK reference range at the end of treatment.**
Change in clinical parameters: blood pressure **Certainty of evidence: very low**	This is an important outcome because the effect of gender-affirming hormones on blood pressure and cardiovascular risk in children and adolescents with gender dysphoria is unknown. One retrospective chart review (Klaver et al. 2020) provided non-comparative evidence on the change in blood pressure between starting gender-affirming hormones and at age 22 years. All outcomes were reported separately for transfemales and transmales; also see subgroups table below. In Klaver et al. 2020 (n=192): • There was no statistically significant change in systolic blood pressure (SBP) in transfemales. However, there was a statistically significant increase in diastolic blood pressure (DBP) in transfemales (mean change [95% CI] +6 mmHg [3 to 10], p<0.001; mean DBP at 22 years [95% CI] 75 [72 to 78]). • In transmales, there was a statistically significant increase in SBP (mean change [95% CI] +5 mmHg [1 to 9], p<0.05; mean SBP at 22 years [95% CI] 126 [122 to 130]), and DBP (mean change [95% CI] +6 mmHg [4 to 9], p<0.001; mean DBP at 22 years [95% CI] 74 [72 to 77]) **(VERY LOW)**. **This study provides very low certainty evidence that gender-affirming hormones statistically significantly increase blood pressure from start of treatment to age 22 years, although the absolute increase was small.**
Change in clinical parameters: body mass index (BMI)	This is an important outcome because the effect of gender-affirming hormones on weight gain and cardiovascular risk in children and adolescents with gender dysphoria is unknown. One retrospective chart review (Klaver et al. 2020) provided non-comparative evidence on the change in body mass index (BMI) between starting gender-affirming hormones and age 22 years. All

Certainty of evidence: very low	outcomes were reported separately for transfemales and transmales; also see subgroups table below. In Klaver et al. 2020 (n=192): • There was a statistically significant increase in BMI in transfemales from the start of gender-affirming hormones to age 22 years (mean change [95% CI] +1.9 [0.6 to 3.2], p<0.005; mean BMI at 22 years [95% CI] 23.2 [21.6 to 24.8]. At age 22 years, 9.9% of transfemales were obese, compared with 3.0% in a reference population of cisgender men. • There was a statistically significant increase in BMI in transmales from the start of gender-affirming hormones to age 22 years (mean change [95% CI] +1.4 [0.8 to 2.0], p<0.005; mean BMI at 22 years [95% CI] 23.9 [23.0 to 24.7]). At age 22 years, 6.6% of transmales were obese, compared with 2.2% in a reference population of cisgender women **(VERY LOW)**. **This study provides very low certainty evidence that gender-affirming hormones statistically significantly increase BMI from start of treatment to age 22 years, although most participants were within the healthy weight range.**
Change in clinical parameters: liver function **Certainty of evidence: very low**	This is an important outcome because if treatment-induced liver injury (raised liver enzymes are a marker of this) is suspected, gender-affirming hormones may need to be stopped. One retrospective chart review (Stoffers et al. 2019) provided non-comparative evidence on the change in liver enzymes in transmales between starting gender-affirming hormones and up to 24-months follow-up. In Stoffers et al. 2019 (n=62): • There was no statistically significant change in aspartate aminotransferase (AST), alanine aminotransferase (ALT) and gamma-glutamyltransferase (GCT) in transmales. • There was a statistically significant increase in alkaline phosphatase (ALP) levels from starting gender-affirming hormones to 6- and 12-months follow-up, although by 24-months the difference was not statistically significant (median [IQR]: start of hormones 102 [78 to 136], 6-month follow-up 115 [102 to 147] p<0.001, 12-month follow-up 112 [88 to 143] p<0.001) **(VERY LOW)**. **This study provides very low certainty evidence that gender-affirming hormones do not affect liver function in transmales from baseline to 24 months follow-up.**
Change in clinical parameters: kidney function **Certainty of evidence: very low**	This is an important outcome because if renal damage (raised serum creatinine and urea are markers of this) is suspected, treatment with gender-affirming hormones may need to be stopped. One retrospective chart review (Stoffers et al. 2019) provided non-comparative evidence on the change in serum creatinine and serum urea levels in transmales between starting gender-affirming hormones and up to 24-months follow-up. In Stoffers et al. 2019 (n=62):

	• There was a statistically significant increase in creatinine levels in transmales at all timepoints up to 24 months (mean [SD]: start of hormones 62 umol/L [7], 6 months 70 umol/L [9] , 12 months 74 umol/L [10], 24 months 81 umol/L [10], p<0.001). • There was no statistically significant change in urea in transmales (follow-up duration not reported) **(VERY LOW)**. **This study provides very low certainty evidence on the effects of gender-affirming hormones on kidney function in transmales from baseline to 24 months follow-up. A statistically significant increase in creatinine levels was seen, but these were within the UK reference range. Urea levels were unchanged.**

Treatment discontinuation
 	
Certainty of evidence: very low
	This is an important outcome because there is uncertainty about the short- and long-term impact of stopping treatment with gender-affirming hormones in children and adolescents with gender dysphoria.
	
	One uncontrolled, retrospective chart review (Khatchadourian et al. 2014) provided evidence relating to permanent or temporary treatment discontinuation in children and adolescents with gender dysphoria.
	
	Khatchadourian et al. 2014 narratively reported treatment discontinuation in a cohort of 63 adolescents (24 transfemales and 39 transmales) who received gender-affirming hormones:
	• No participants permanently discontinued gender-affirming hormones.
	• No transfemales temporarily discontinued gender-affirming hormones.
	• Three transmales temporarily discontinued gender-affirming hormones due to:
	  ○ mental health comorbidities (n=2)
	  ○ androgenic alopecia (n=1).
	All 3 participants eventually resumed treatment, although timescales were not reported **(VERY LOW)**.
	
	This study provides very low certainty evidence that the rates of discontinuation during treatment with gender-affirming hormones are low (duration of treatment not reported).

Adverse effects
 	
Certainty of evidence: very low
	This is an important outcome because if there are adverse effects, gender-affirming hormones may need to be stopped.
	
	One uncontrolled, retrospective chart review (Khatchadourian et al. 2014) provided evidence relating to adverse effects from gender-affirming hormones in children and adolescents with gender dysphoria.
	
	Khatchadourian et al. 2014 narratively reported adverse effects in a cohort of 63 adolescents (24 transfemales and 39 transmales) receiving treatment with gender-affirming hormones:
	• No severe complications were reported.
	• No transfemales reported minor complications.
	• Twelve transmales developed minor complications, which were:
	  ○ severe acne, requiring isotretinoin treatment (n=7)
	  ○ androgenic alopecia (n=1)
	  ○ mild dyslipidaemia (further details not provided; n=3)
	  ○ significant mood swings (n=1) **(VERY LOW)**.

	This study provides very low certainty evidence about the potential adverse effects of gender-affirming hormones (duration of treatment not reported). No conclusions could be drawn.

Abbreviations: ALP: alkaline phosphatase; ALT: alanine aminotransferase; AST: aspartate aminotransferase; BMAD: bone mineral apparent density; BMD: bone mineral density; BMI: body mass index; DBP: diastolic blood pressure; GGT: gamma-glutamyl transferase; HbA1c: glycated haemoglobin; HDL: high-density lipoproteins; HOMA-IR: Homeostatic Model Assessment of Insulin Resistance; IQR: interquartile range; LDL: low-density lipoproteins; p: p-value; SBP: systolic blood pressure; SD: standard deviation.

In children and adolescents with gender dysphoria, what is the cost-effectiveness of gender-affirming hormones compared to one or a combination of psychological support, social transitioning to the desired gender or no intervention?

Outcome	Evidence statement
Cost-effectiveness	No studies were identified to assess the cost-effectiveness of gender-affirming hormones for children and adolescents with gender dysphoria.

From the evidence selected, are there any subgroups of children and adolescents with gender dysphoria that may benefit from gender-affirming hormones more than the wider population of interest?

Subgroup	Evidence statement
Sex assigned at birth males (transfemales) **Certainty of evidence: Very low**	Some studies reported data separately for sex assigned at birth males (transfemales). This included some direct comparisons with sex assigned at birth females (transmales). **Impact on mental health: depression and anxiety** One uncontrolled, prospective, longitudinal study (Kuper et al. 2020) reported the change in depression (measured using QIDS clinician-reported and self-reported), anxiety and anxiety-related symptoms (measured using SCARED) in transfemales. See the clinical effectiveness results above for full details. In Kuper et al. 2020 (n=33 to 45, varies by outcome), changes were seen in depression, anxiety and anxiety-related symptoms from baseline to follow-up but the authors did not report any statistical analyses, so it is unclear if was any changes were statistically significant **(VERY LOW)**. **This study provides very low certainty evidence on the effects of gender-affirming hormones on depression, anxiety and anxiety-related symptoms over time in sex assigned at birth males (transfemales; mean duration of treatment 10.9 months). No conclusions could be drawn.** **Impact on mental health: suicidality**

	One uncontrolled, retrospective, longitudinal study (Allen et al. 2019) reported the change in Ask Suicide-Screening Questions (ASQ) in transfemales compared with transmales. See the clinical effectiveness results above for full details. Between baseline and the final assessment, there was no statistically significant difference in change in ASQ score for transfemales compared with transmales (p=0.79; n=47) **(VERY LOW)**. One uncontrolled, prospective, longitudinal study (Achille et al. 2020) reported the change in suicidal ideation in transfemales measured using additional questions from the PHQ 9_Modified for Teens. See the clinical effectiveness results above for full details. At baseline, 11.8% (2/17) of transfemales had suicidal ideation, compared with 5.9% (1/17) at about 12-months follow-up (no statistical analysis reported) **(VERY LOW)**. **These studies provide very low certainty evidence that any change in suicidal ideation is not different between sex assigned at birth males (transfemales) and sex assigned at birth females (transmales) from baseline to follow-up of about 12 months.** **Impact on quality of life** One uncontrolled, retrospective, longitudinal study (Allen et al. 2019) reported the change in the GWBS of the Paediatric Quality of Life Inventory in transfemales compared with transmales. See the clinical effectiveness results above for full details. Between baseline and final assessment, there was no statistically significant difference in change in GWBS of the Paediatric Quality of Life Inventory for transfemales compared with transmales (p=0.32; n=47) **(VERY LOW)**. **This study provides very low certainty evidence that any change in general wellbeing is not different between sex assigned at birth males (transfemales) and sex assigned at birth females (transmales) from baseline to follow-up of about 12 months.** **Impact on body image** One uncontrolled, prospective, longitudinal study (Kuper et al. 2020) reported change in Body Image Scale (BIS) in transfemales. See the clinical effectiveness results above for full details. In Kuper et al. 2020 (n=30), the mean (±SD) BIS score was 67.5 points (±19.5) at baseline and 49.0 points (±21.6) at follow-up (no statistical analysis reported) **(VERY LOW).** **This study provides very low certainty evidence on the effects of gender-affirming hormones on body image over time in transfemales (mean duration of treatment 10.9 months). No conclusions could be drawn.** **Change in bone density: lumbar spine**

	Two uncontrolled, observational, retrospective studies provided evidence relating to the effect of gender-affirming hormones on lumber spine bone density in transfemales (Klink et al. 2015 and Vlot et al. 2017). See the safety results table above for a full description of the results. **These studies provide very low certainty evidence that lumbar spine bone density (measured by BMAD) increases during treatment with gender-affirming hormones in sex assigned at birth males (transfemales). Z-scores at the end of follow-up suggest average lumbar spine bone density was generally lower than in the equivalent cisgender population. The results for lumbar spine bone density (measured by BMD) were inconsistent.** **Change in bone density: femoral neck** Two uncontrolled, observational, retrospective studies provided evidence relating to the effect of gender-affirming hormones on femoral neck bone density in transfemales (Klink et al. 2015 and Vlot et al. 2017). See the safety results table above for a full description of the results. **These studies provide very low certainty evidence that femoral neck bone density (measured by BMAD) was unchanged in sex assigned at birth males (transfemales) during treatment with gender-affirming hormones (follow-up between 2 and 5 years). Z-scores at the end of follow-up suggest and the average femoral neck bone density was lower than in the equivalent cisgender population. The results for femoral neck bone density (measured by BMD) were inconsistent.** **Change in clinical parameters: glucose, insulin and HbA1c** One uncontrolled, retrospective chart review (Klaver et al. 2020) provided evidence on glucose, insulin and HbA1c in transfemales. See the safety results table above for a full description of the results. **This study provided very low certainty evidence that gender-affirming hormones do not affect HbA1c, glucose levels, insulin levels and insulin resistance in sex assigned at birth males (transfemales) from the start of treatment to age 22 years.** **Change in clinical parameters: lipids** One retrospective chart review (Klaver et al. 2020) provided evidence on the change in lipids (total cholesterol, HDL cholesterol, LDL cholesterol and triglycerides) in transfemales. See the safety results table above for a full description of the results. **This study provides very low certainty evidence that gender-affirming hormones do not affect lipid profiles in sex assigned at birth males (transfemales) from the start of treatment to age 22 years.** **Change in clinical parameters: blood pressure**

	One retrospective chart review (Klaver et al. 2020) provided evidence on the change in blood pressure in transfemales. See the safety results table above for a full description of the results. **This study provides very low certainty evidence that gender-affirming hormones statistically significantly increase blood pressure in sex assigned at birth males (transfemales), although the absolute increase was small from the start of treatment to age 22 years.** **Change in clinical parameters: body mass index (BMI)** One retrospective chart review (Klaver et al. 2020) provided evidence on the change in BMI in transfemales. See the safety results table above for a full description of the results. **This study provides very low certainty evidence that gender-affirming hormones statistically significantly increase BMI in sex assigned at birth males (transfemales), although most participants were within the healthy weight range from the start of treatment to age 22 years.** **Treatment discontinuation** One uncontrolled, retrospective chart review provided evidence relating to permanent or temporary discontinuation of gender-affirming hormones in transfemales (Khatchadourian et al. 2014). **This study provides very low certainty evidence that the rates of discontinuation during treatment with gender-affirming hormones in sex assigned at birth males (transfemales) are low. Duration of treatment with gender-affirming hormones was not reported.** **Adverse effects** One uncontrolled, retrospective chart review provided evidence relating to adverse effects from gender-affirming hormones in transfemales (Khatchadourian et al. 2014). **This study provides very low certainty evidence about the potential adverse effects of gender-affirming hormones in sex assigned at birth males (transfemales). No conclusions could be drawn. Duration of treatment with gender-affirming hormones was not reported.**
Sex assigned at birth females (transmales) **Certainty of evidence: Very low**	Some studies reported data separately for sex assigned at birth females (transmales). This included some direct comparisons with sex assigned at birth males (transfemales). **Impact on mental health: depression and anxiety** One uncontrolled, prospective, longitudinal study (Kuper et al. 2020) reported the change in depression (measured using QIDS clinician-reported and self-reported), anxiety and anxiety-related symptoms (measured using SCARED) in transmales. See the clinical effectiveness results above for full details. In Kuper et al. 2020 (n=65 to 78, varies by outcome), changes were seen in depression, anxiety and anxiety-related symptoms from

	baseline to follow-up but the authors did not report any statistical analysis, so it is unclear if any changes are statistically significant **(VERY LOW)**. **This study provides very low certainty evidence on the effects of gender-affirming hormones on depression, anxiety and anxiety-related symptoms over 10.9 months in transmales. No conclusions could be drawn.** **Impact on mental health: suicidality** One uncontrolled, retrospective, longitudinal study (Allen et al. 2019) reported the change in Ask Suicide-Screening Questions (ASQ) in transmales compared with transfemales. See the sex assigned at birth males (transfemales) row above for full details of the results. One uncontrolled, prospective, longitudinal study (Achille et al. 2020) reported the change in suicidal ideation in transmales measured using additional questions from the PHQ 9_Modified for Teens. See the clinical effectiveness results above for full details. At baseline, 9.1% (3/33) of transmales had suicidal ideation, compared with 6.1% (2/33) at about 12-months follow-up (no statistical analysis reported) **(VERY LOW)**. **These studies provide very low certainty evidence that any change in suicidal ideation is not different between sex assigned at birth females (transmales) and sex assigned at birth males (transfemales). Mean duration of treatment about 12 months.** **Impact on quality of life** One uncontrolled, retrospective, longitudinal study (Allen et al. 2019) reported the change in the GWBS of the Paediatric Quality of Life Inventory in transmales compared with transfemales. See the sex assigned at birth males (transfemales) row above for full details of the results. **This study provides very low certainty evidence that any change in general wellbeing is not different between sex assigned at birth females (transmales) and sex assigned at birth males (transfemales). Mean duration of treatment about 12 months.** **Impact on body image** One uncontrolled, prospective, longitudinal study (Kuper et al. 2020) reported change in Body Image Scale (BIS) in transmales. See the clinical effectiveness results above for full details. In Kuper et al. 2020 (n=66), the mean (±SD) BIS score was 71.1 points (±13.4) at baseline and 52.9 points (±16.8) at follow-up (no statistical analysis reported) **(VERY LOW)**. **This study provides very low certainty evidence on the effects of gender-affirming hormones on body image over 10.9 months in transmales. No conclusions could be drawn.** **Change in bone density: lumbar spine**

	Three uncontrolled, observational, retrospective studies provided evidence relating to the effect of gender-affirming hormones on lumber spine bone density in transmales (Klink et al. 2015, Stoffers et al. 2019 and Vlot et al. 2017). See the safety results table above for a full details of the results. **These studies provide very low certainty evidence that lumbar spine bone density (measured by BMAD) increases during 2 to 5 years treatment with gender-affirming hormones in sex assigned at birth females (transmales). Z-scores at the end of follow-up suggest the average lumbar spine bone density was generally lower than in the equivalent cisgender population. The results for lumbar spine bone density (measured by BMD) were inconsistent.** **Change in bone density: femoral neck** Three uncontrolled, observational, retrospective studies provided evidence relating to the effect of gender-affirming hormones on femoral neck bone density in transmales (Klink et al. 2015, Stoffers et al. 2019 and Vlot et al. 2017). See the safety results table above for a full details of the results. **These studies provide very low certainty evidence that femoral neck bone density (measured by BMAD) statistically significantly increased in sex assigned at birth females (transmales) during 2 to 5 years treatment with gender-affirming hormones. Z-scores at the end of follow-up suggest the average femoral neck bone density was generally lower than in the equivalent cisgender population. The results for femoral neck bone density (measured by BMD) were inconsistent.** **Change in clinical parameters: glucose, insulin and HbA1c** Two uncontrolled, retrospective chart reviews (Klaver et al. 2020; Stoffers et al. 2019) provided evidence on glucose, insulin and HbA1c in transmales. See the safety results table above for full details of the results. **This study provided very low certainty evidence that gender-affirming hormones do not affect HbA1c, glucose levels, insulin levels and insulin resistance in sex assigned at birth females (transmales). Reported from start of treatment to age 22 years.** **Change in clinical parameters: lipids** One retrospective chart review (Klaver et al. 2020) provided evidence on the change in lipids (total cholesterol, HDL cholesterol, LDL cholesterol and triglycerides) in transmales. See the safety results table above for full details of the results. **This study provides very low certainty evidence that treatment with gender-affirming hormones is associated with a small but statistically significant worsening of cholesterol levels in sex assigned at birth females (transmales), but mean cholesterol and triglyceride levels were within the UK reference range at end of treatment, from start of treatment to age 22 years.**

	Change in clinical parameters: blood pressure One retrospective chart review (Klaver et al. 2020) provided evidence on the change in blood pressure in transmales. See the safety results table above for full details of the results. **This study provides very low certainty evidence that gender-affirming hormones statistically significantly increase blood pressure in sex assigned at birth females (transmales), although the absolute increase was small, from start of treatment to age 22 years.** **Change in clinical parameters: body mass index (BMI)** One retrospective chart review (Klaver et al. 2020) provided evidence on the change in body mass index (BMI) in transmales. See the safety results table above for full details of the results. **This study provides very low certainty evidence that gender-affirming hormones statistically significantly increase BMI in sex assigned at birth females (transmales), although most participants were within the healthy weight range, from start of treatment to age 22 years.** **Change in clinical parameters: liver function** One retrospective chart review (Stoffers et al. 2019) provided non-comparative evidence on the change in liver enzymes in transmales between starting gender-affirming hormones and up to 24-months follow-up. See the safety results table above for full details of the results. **This study provides very low certainty evidence that gender-affirming hormones for about 12 months do not affect liver function in sex assigned at birth females (transmales).** **Change in clinical parameters: kidney function** One retrospective chart review (Stoffers et al. 2019) provided non-comparative evidence on the change in serum creatinine and serum urea levels in transmales between starting gender-affirming hormones and up to 24-months follow-up. See the safety results table above for full details of the results. **This study provides very low certainty evidence on the effects of gender-affirming hormones on kidney function in sex assigned at birth females (transmales). A statistically significant increase in creatinine levels was seen at about 12 months follow-up, but these were within the UK reference range. Urea levels were unchanged.** **Treatment discontinuation** One uncontrolled, retrospective chart review provided evidence relating to permanent or temporary discontinuation of gender-affirming hormones in transmales (Khatchadourian et al. 2014). See the safety results table above for full details of the results. **This study provides very low certainty evidence that the rates of treatment discontinuation with gender-affirming hormones in sex**

	assigned at birth females (transmales) is low. Duration of gender-affirming hormones not reported. **Adverse effects** One uncontrolled, retrospective chart review provided evidence for adverse effects from gender-affirming hormones in transmales (Khatchadourian et al. 2014). See the safety results table above for full details of the results. **This study provides very low certainty evidence about the potential adverse effects of gender-affirming hormones in sex assigned at birth females (transmales). No conclusions could be drawn. Duration of gender-affirming hormones not reported.**
Duration of gender dysphoria	No evidence was identified.
Age at onset of gender dysphoria	No evidence was identified.
Age at onset of puberty	No evidence was identified.
Tanner stage at which GnRH analogue or gender-affirming hormones started	One uncontrolled, prospective, longitudinal study (Kuper et al. 2020) reported the impact of Tanner stage on outcomes, although it is not clear whether this is referring to Tanner stage at initial assessment, at the start of GnRH analogues or at another timepoint.
Diagnosis of autistic spectrum disorder	No evidence was identified.
Diagnosis of a mental health condition	One uncontrolled, prospective, longitudinal study (Achille et al. 2020) reported outcomes that were adjusted for engagement in counselling and medicines for mental health problems. Information about diagnoses and treatment were not provided. Rates of mental health issues appear to be high in the cohort. **Impact on mental health** Achille et al. 2020 reported the change in depression scores, controlled for engagement in counselling and medicines for mental health problems (measured using the Center for Epidemiologic Studies Depression [CESD-R] scale and Patient Health Questionnaire Modified for Teens [PHQ 9_Modified for Teens] score: • There was no statistically significant change in CESD-R from baseline to about 12-months follow-up. • There was no statistically significant change in PHQ 9_Modified for Teens score from baseline to about 12-months follow-up **(VERY LOW)**. **Impact on quality of life** Achille et al. 2020 reported the change in quality of life scores, controlled for engagement in counselling and medicines for mental health problems (measured using the Quality of Life Enjoyment and Satisfaction Questionnaire [QLES-Q-SF] score: • There was no statistically significant change in QLES-Q-SF score from baseline to about 12-months follow-up **(VERY LOW)**.

	This study provides very low certainty evidence about outcomes that were adjusted for engagement in counselling and medicines for mental health problems. No conclusions could be drawn.

Abbreviations: ASQ: Ask Suicide-Screening Questions; CESD-R: Center for Epidemiologic Studies Depression; GnRH: Gonadotrophin releasing hormone; GWBS: General Well-Being Scale; HDL: high-density lipoproteins; LDL: low-density lipoproteins; p: p-value; PHQ 9_Modified for Teens: Patient Health Questionnaire Modified for Teens; QLES-Q-SF: Quality of Life Enjoyment and Satisfaction Questionnaire.

From the evidence selected,

(a) what are the criteria used by the research studies to define gender dysphoria, gender identity disorder and gender incongruence of childhood?

(b) what were the ages at which participants commenced treatment with gender-affirming hormones?

(c) what was the duration of treatment with GnRH analogues?

<table>
<tr><th>Outcome</th><th>Evidence statement</th></tr>
<tr><td>Diagnostic criteria</td><td>The DSM-IV-TR criteria was used in 3 studies (Klaver et al. 2020, Klink et al. 2015 and Vlot et al. 2017).

The DSM-V criteria was used in 2 studies (Kuper et al. 2020 and Stoffers et al. 2019). The DSM-V has one overarching definition of gender dysphoria with separate specific criteria for children and for adolescents and adults. The general definition describes a conflict associated with significant distress and/or problems functioning associated with this conflict between the way they feel and think of themselves which must have lasted at least 6 months.

The ICD-10 diagnosis of ‘transsexualism’ was used in 1 study (Kaltiala et al. 2020). The authors state that this is the corresponding diagnosis to ‘gender dysphoria’ in the DSM-V, and that diagnostic assessments in the study location (Finland) take place according to ICD-10.

It was not reported how gender dysphoria was defined in the remaining 4 studies (VERY LOW).

From the evidence selected, the most commonly reported diagnostic criteria for gender dysphoria (5/10 studies) was the DSM criteria in use at the time the study was conducted.</td></tr>
<tr><td>Age when gender-affirming hormones started</td><td>8/10 studies reported the age at which participants started treatment with gender-affirming hormones, either as the mean age (with SD) or median age (with the range):

<table>
<tr><th>Study</th><th>Mean age (± SD)</th></tr>
<tr><td>Allen et al. 2019</td><td>16.7 years (not reported)</td></tr>
<tr><td>Khatchadourian et al. 2014</td><td>17.4 years (1.9)</td></tr>
<tr><td>Klaver et al. 2020</td><td>16.4 years (1.1) in transfemales
16.9 years (0.9) in transmales</td></tr>
<tr><td>Kuper et al. 2020</td><td>16.2 (1.2)</td></tr>
<tr><td>Klink et al. 2015</td><td>16.6 years (1.4) in transfemales
16.4 years (2.3) in transmales</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td></td><td>
<table>
<tr><th>Study</th><th>Median age (range)</th></tr>
<tr><td>Stoffers et al. 2019</td><td>17.2 years (15 to 19.5)</td></tr>
<tr><td>Vlot et al. 2017</td><td>16.3 years (15.9 to 19.5) in transfemales
16.0 years (14.0 to 18.9) in transmales</td></tr>
</table>

Age at the start of treatment was not reported in 3 studies:
• In Achille et al. 2020 the mean age at initial assessment (baseline) was 16.2 years (SD ±2.2)
• In Kaltiala et al. 2020 the mean age at diagnosis was 18.1 years (range 15.2 to 19.9)
• In Lopez de Lara et al. 2020 the mean age of participants was 16 years (range 14 to 18), although it is not clear if this is at the initial assessment or at the start of gender-affirming hormones.

The evidence included showed that most children and adolescents started treatment with gender-affirming hormones at about 16 to 17 years, with a range of about 14 to 19 years.
</td></tr>
<tr><td>Duration of treatment with GnRH analogues</td><td>
The duration of treatment with GnRH analogues was reported in 3/10 studies:

<table>
<tr><th>Study</th><th>Median duration</th></tr>
<tr><td>Klaver et al. 2020</td><td>2.1 years (IQR 1.0 to 2.7) in transfemales
1.0 years (IQR 0.5 to 2.9) in transmales</td></tr>
<tr><td>Klink et al. 2015</td><td>1.3 years (range 0.5 to 3.8) in transfemales
1.5 years (range 0.25 to 5.2) in transmales
(GnRH analogue monotherapy)</td></tr>
<tr><td>Stoffers et al. 2019</td><td>8 months (range 3 to 39)</td></tr>
</table>

The evidence included showed wide variation in the duration of treatment with gender-affirming hormones, but most studies did not report this information. Treatment duration ranged from a few months up to about 5 years.
</td></tr>
</table>

Abbreviations: DSM, Diagnostic and Statistical Manual of Mental Disorders criteria; GnRH, Gonadotrophin-releasing hormone; ICD, International Statistical Classification of Diseases and Related Health Problems; IQR, interquartile range; SD, standard deviation.

6. Discussion

A key limitation to identifying the effectiveness and safety of gender-affirming hormones for children and adolescents with gender dysphoria is the lack of reliable comparative studies. All the studies included in this evidence review are uncontrolled observational studies, which are subject to bias and confounding and were of very low certainty using modified GRADE. The size of the population with gender dysphoria means conducting a prospective trial may be unrealistic, at least on a single centre basis. There may also be ethical issues with a 'no treatment arm' in comparative trials of gender-affirming hormones, where there may be poor mental health outcomes if treatment is withheld. However, the use of an active comparator such as close psychological support may reduce ethical concerns in future trials. A fundamental limitation of all the uncontrolled studies included in this review is that any changes in scores from baseline to follow-up could be attributed to a regression-to-the-mean.

The included studies have relatively short follow-up, with an average duration of treatment with gender-affirming hormones between around 1 year and 5.8 years. Further studies with a longer follow-up are needed to determine the long-term effect of gender-affirming hormones for children and adolescents with gender dysphoria.

Most studies included in this review did not report comorbidities (physical or mental health) and no study reported concomitant treatments in detail. Because of this it is not clear whether any changes observed were due to gender-affirming hormones or other treatments the participants may have received. For example, we do not know if any improvement in depression symptom score over time was the result of gender-affirming hormones or the mental health support the person may be receiving (including medicines or counselling). This may be of particular importance for the mental health outcomes discussed in this review, since depression, anxiety and other related symptoms are common in children and adolescents with gender dysphoria. In Achille et al. 2020, at baseline around one-third of participants were taking medicines for mental health problems and around two-thirds reported being depressed in the past year. In Kaltiala et al. 2020, half the participants needed mental health treatment during and before gender identity assessment, with the most common reasons for treatment being depression, anxiety and suicidality. Only 1 study reported outcomes adjusted for engagement in counselling and medicines for mental health problems (Achille et al. 2020). This study found that gender-affirming hormones had no significant impact on depression and quality of life when adjusted for mental health care, despite significant approvements reported for the unadjusted results. However, it is not possible to draw conclusions on the impact of concurrent mental health treatment on the effect of gender-affirming hormones based on this study alone. Details of the mental health care provided are not reported in the study and results are presented for transfemales and transmales separately, resulting in small patient numbers and possible underpowering.

In most of the included studies, details of the gender-affirming hormone treatment regimens are poorly reported, with limited information provided about the medicines, doses and routes of administration used. It is not clear whether the interventions used in the studies are reflective of current UK practice for children and adolescents with gender dysphoria. There is also the suggestion that the hormone dose used in 1 study may have been too low; the authors of Klink et al. 2015 suggest that the relatively low initial dose of oestrogen for transfemales may be the reason for the observed lack of effect on lumber spine bone density. Duration of treatment with a GnRH analogue is also poorly reported and is only stated in 3/10 studies.

There is a degree of indirectness in some studies, with some participants included that fall outside of the population of this evidence review. For example, in Kuper et al. 2020 17% of participants received puberty suppression alone, and in Achille et al. 2020, 30% of participants received no treatment or puberty suppression alone. Some results and statistical analyses are only reported for the whole cohort in these studies and not the subgroup of participants who received gender-affirming hormones.

Participant numbers are poorly reported in some of the included studies. In Achille et al. 2020, 47% (45/95) of the people who entered the study did not have follow-up data and were excluded from the analyses, with no explanation or description of those people lost to follow-up. In Kuper et al. 2020, the number of participants varied by outcome, with less than

two-thirds of participants providing data for some outcomes. The authors provide no explanation for this incomplete reporting.

It is not clear whether some outcome measures, specifically those related to psychosocial functioning, are relevant to the UK population. In Kaltiala et al. 2020, an observational study conducted in Finland, the proportion of participants living with parents or guardians is reported as marker of appropriate functioning. The authors state that in Finnish culture young people tend to leave the parental home early, with only around one-quarter of 20 to 24 year olds still living at home. This is lower than in the UK, where around half of 20 to 24 year olds live with their parents or guardians (ONS: Why are more young people living with their parents?).

It is difficult to draw firm conclusions for many of the effectiveness and safety outcomes reported in the included studies because many different scoring tools and methods were used to assess the same outcome, often with conflicting results. For example, bone density is reported as bone mineral density (BMD) and bone mineral apparent density (BMAD) in the same study, the latter being a size-adjusted measure often useful for people whose bones are still growing. For some populations (transfemale versus transmale) and bone regions (lumber spine versus femoral neck), statistically significant differences in BMD are reported but not for BMAD, and vice versa.

In addition to this, most outcomes reported across the included studies do not have an accepted minimal clinically important difference (MCID), making it difficult the determine whether any observed statistically significant changes are clinically meaningful. However, the authors of some studies report thresholds to interpret the results of the scoring tools, so some conclusions can be made. For example, the mean Utrecht Gender Dysphoria Scale (UGDS) score (a measure of gender dysphoria symptoms) reduced to about 15 points after treatment with gender-affirming hormones (Lopez de Lara et al. 2020). The authors state that scores of 40 points or above signify gender dysphoria, suggesting that after about 12 months of treatment with gender-affirming hormones, the majority of participants did not have symptoms of gender dysphoria.

The impact of gender-affirming hormones on bone density was reported in 3 studies (Klink et al. 2015, Stoffers et al. 2019 and Vlot et al. 2017). Although these studies did not include a control group, comparisons to a reference population are reported using z-scores. Comparisons were made to a cisgender population, meaning for example that bone density in transfemales was compared with bone density in cisgender males. The authors of Klink et al. 2015 note that this may not be the ideal comparison, because androgens and oestrogens affect bone differently, and that bone properties in a trans population differ from their age- and sex assigned at birth-matched controls. Beyond this, a major limitation when trying to determine the impact of gender-affirming hormones on the short- and long-term bone health of children and adolescents is the lack of data on fracture rates and other patient-orientated outcomes, including rates of osteoporosis. Studies of GnRH analogues in children and adolescents with gender dysphoria suggest that GnRH analogue treatment may reduce the expected increase in bone density (which is expected during puberty). Although improvements in bone density were reported following treatment with gender-affirming hormones, Z-scores suggest that bone density remained lower in transfemales and transmales compared with an equivalent cisgender population.

One study reported on cardiovascular risk factors at age 22 years in people who started gender-affirming hormones for gender dysphoria as adolescents. While glucose levels, insulin levels and insulin resistance were broadly unchanged at 22 years, statistically significant increases in blood pressure and body mass index were seen. A small but statistically significant worsening of the lipid profile in transmales who received testosterone was also seen at age 22 years. However, further studies with a considerably longer follow-up and a focus on patient-oriented outcomes, including cardiovascular events and mortality are needed to determine the long-term impact on cardiovascular health of starting gender-affirming hormones during childhood and adolescence.

Only 1 study reported adverse events and discontinuation rates with gender-affirming hormones in children and adolescents. Conclusions on these outcomes cannot be made based on this study alone.

This review did not identify sub-groups of people who may benefit more from gender-affirming hormones. Limited evidence from 2 studies suggests there was no difference in response to treatment between transfemales and transmales for mental health and quality of life (Achille et al. 2020 and Allen et al. 2019).

7. Conclusion

This evidence review found limited evidence for the effectiveness and safety of gender-affirming hormones in children and adolescents with gender dysphoria, with all studies being uncontrolled, observational studies, and all outcomes of very low certainty. Any potential benefits of treatment must be weighed against the largely unknown long-term safety profile of these treatments.

The results from 5 uncontrolled, observational studies (Achille et al. 2020, Allen et al. 2019, Kaltiala et al. 2020. Kuper et al. 2020, Lopez de Lara et al. 2020) suggest that, in children and adolescents with gender dysphoria, gender-affirming hormones are likely to improve symptoms of gender dysphoria, and may also improve depression, anxiety, quality of life, suicidality, and psychosocial functioning. The impact of treatment on body image is unclear. All results were of very low certainty. The clinical relevance of any improvements to the person is difficult to determine because most outcomes do not have a recognised minimal clinically important difference, and the authors do not present statistical analysis for some outcomes.

A further 5 uncontrolled, observational studies (Khatchadourian et al. 2014, Klaver et al. 2020, Klink et al. 2015, Stoffers et al. 2019 and Vlot et al. 2017) reported on safety outcomes, all of which provided very low certainty evidence. Statistically significant increases in some measures of bone density were seen following treatment with gender-affirming hormones, although results varied by bone region (lumber spine versus femoral neck) and by population (transfemales versus transmales). However, z-scores suggest that bone density remained lower in transfemales and transmales compared with an equivalent cisgender population. Results from 1 study of gender-affirming hormones started during adolescence reported statistically significant increases in blood pressure and body mass index, and worsening of the lipid profile (in transmales) at age 22 years, although longer term studies that report on cardiovascular event rates are needed. Adverse events and discontinuation rates associated with gender-affirming hormones were only reported in 1 study, and no conclusions can be made on these outcomes.

This review did not identify sub-groups of people who may benefit more from gender-affirming hormones. Limited evidence from 2 studies suggests there was no difference in response to treatment between transfemales and transmales for mental health and quality of life (Achille et al. 2020 and Allen et al. 2019).

No cost-effectiveness evidence was found to determine whether gender-affirming hormones are a cost-effective treatment for children and adolescents with gender dysphoria.

Appendix A PICO

The review questions for this evidence review are:

1. For children and adolescents with gender dysphoria, what is the clinical effectiveness of treatment with gender-affirming hormones compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention?
2. For children and adolescents with gender dysphoria, what is the short-term and long-term safety of gender-affirming hormones compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention?
3. For children and adolescents with gender dysphoria, what is the cost-effectiveness of gender-affirming hormones compared to one or a combination of psychological support, social transitioning to the desired gender or no intervention?
4. From the evidence selected, are there particular sub-groups of children and adolescents with gender dysphoria that derive comparatively more (or less) benefit from treatment with gender-affirming hormones than the wider population of children and adolescents with gender dysphoria?
5. From the evidence selected,
   (a) what are the criteria used by the research studies to define gender dysphoria, gender identity disorder and gender incongruence of childhood?
   (b) what were the ages at which participants commenced treatment with gender-affirming hormones?
   (c) what was the duration of GnRH analogues treatment?

PICO table

P –Population and Indication	Children and adolescents aged 18 years or less who have gender dysphoria, gender identity disorder or gender incongruence of childhood as defined by the study. The following subgroups of children and adolescents with gender dysphoria, gender identity disorder or gender incongruence of childhood need to be considered:

	• Sex assigned at birth males • Sex assigned at birth females • The duration of gender dysphoria: less than 6 months, 6-24 months, and more than 24 months) • The age at which treatment was initiated with GnRH analogues and with gender-affirming hormones. • The age of onset of gender dysphoria • The age of onset of puberty • Adolescents with gender dysphoria who have a pre-existing diagnosis of autistic spectrum disorder. • Adolescents with gender dysphoria who had a significant mental health symptom load at diagnosis including anxiety, depression (with or without a history of self-harm and suicidality), psychosis, personality disorder, Attention Deficit Hyperactivity Disorder and eating disorders.
I – Intervention	Gender-affirming hormone treatments: • A testosterone preparation for sex assigned at birth female patients which may include testosterone in the form of Sustanon injections*; testosterone enantate injections; Tostran gel*; Testogel; Testim gel; oral testosterone capsules in the form of testosterone undecanoate (Restandol); Andriol testocaps; Nebido • An oestradiol preparation** for sex assigned at birth male patients which may include: oral estradiol valerate*; oestrogen patches (7β-oestradiol patches e.g. Evorel or Estradem); Estradot patches; ethinyloestradiol *** *These are the used by Leeds Hospital, England. ** Be aware that the American spelling is oestrogen without the ‘o’. ***Ethinyloestradiol is rarely used.
C – Comparator(s)	One or a combination of: • Psychological support • Social transitioning to the gender with which the individual identifies. No intervention
O – Outcomes	There are no known minimal clinically important differences and there are no preferred timepoints for the outcome measures selected. **All outcomes should be stratified by:** • The age at which treatment with gender-affirming hormones was initiated • The length of treatment with GnRH analogues where possible. **A: Clinical Effectiveness** *Critical to decision making* • **Impact on gender dysphoria** This outcome is critical because gender dysphoria in adolescents and children is associated with significant distress and problems functioning. Impact on gender

	dysphoria may be measured by the Utrecht Gender Dysphoria Scale. Other measures as reported in studies may be used as an alternative to the stated measure. • **Impact on mental health** Examples of mental health problems include self-harm, thoughts of suicide, suicide attempts, suicide, eating disorders, depression/low mood and anxiety. These outcomes are critical because self-harm and thoughts of suicide have the potential to result in significant physical harm and for completed suicides the death of the young person. Disordered eating habits may cause significant morbidity in young people. Depression and anxiety are also critical outcomes because they may impact on social, occupational, or other areas of functioning of children and adolescents. The Child and Adolescent Psychiatric Assessment (CAPA) may be used to measure depression and anxiety. The impact on self-harm and suicidality (ideation and behaviour) may be measured using the Suicide Ideation Questionnaire Junior. Other measures may be used as an alternative to the stated measure. • **Impact on Quality of Life** This outcome is critical because gender dysphoria in children and adolescents may be associated with a significant reduction in health-related quality of life. Quality of Life may be measured by the KINDL questionnaire, Kidscreen 52. Other measures as reported in studies may be used as an alternative to the stated measures. *Important to decision making* • **Impact on body image** This outcome is important because some young people with gender dysphoria may desire to take steps to suppress features of their physical appearance associated with their sex assigned at birth or accentuate physical features of their experienced gender. The Body Image Scale could be used as a measure. Other measures as reported in studies may also be used as an alternative to the stated measure. • **Psychosocial Impact** Examples of psychosocial impact are: coping mechanisms which may impact on substance misuse; family relationships; peer relationships. This outcome is important because gender dysphoria in adolescents and children is associated with internalising and externalising behaviours and emotional and behavioural problems which may impact on social and occupational functioning. The child behavioural check list (CBCL) may be used to measure the impact on psychosocial functioning. Other measures as reported in studies may be used as an alternative to the stated measure. • **Engagement with health care services** This outcome is important because patient engagement with healthcare services will impact on their clinical outcomes. Engagement with health care services may be measured using the Youth Health Care measure-satisfaction, utilization, and needs (YHC-SUN) questionnaire. Loss to follow up and

	should also be ascertained as part of this outcome. Alternative measures to the YHC-SUN questionnaire may be used as reported in studies. • **Transitioning surgery - Impact on extent of and satisfaction with surgery** This outcome is important because some children and adolescents with gender dysphoria may in adulthood proceed to transitioning surgery. Stated measures of the extent of surgery and satisfaction with surgery in studies may be reported. • **De-transition** The proportion of patients who de-transition following the commencement of gender-affirming hormone treatment and the reasons why. This outcome is important to patients because there is uncertainty about the short and long term safety and adverse effects of gender-affirming hormones in children and adolescents with gender dysphoria. **B: Safety** • Short and long -term safety and adverse effects of taking gender-affirming hormones is important to assess whether treatment causes acute side effects that may lead to withdrawing the treatment or long term effects that may impact on decisions for transitioning or de-transitioning. Aspects to be reported on should include Impact of the drug use such as clinically relevant derangement in renal and liver function tests, lipids, glucose, insulin and glycosylated haemoglobin, cognitive development and functioning. The clinical and physical impact of temporary and permanent withdrawal the drug such as when patients decide to de-transition – e.g. delay in the attainment of peak bone mass, attenuation of peak bone mass, permanent physical effects. **C: Cost effectiveness** Cost effectiveness studies should be reported.
Inclusion criteria	
Study design	Systematic reviews, randomised controlled trials, controlled clinical trials, cohort studies. If no higher level quality evidence is found, case series can be considered.
Language	English only
Patients	Human studies only
Age	18 years or less
Date limits	2000-2020

Exclusion criteria	
Publication type	Conference abstracts, non-systematic reviews, narrative reviews, commentaries, letters, editorials, guidelines and pre-publication prints
Study design	Case reports, resource utilisation studies

Appendix B Search strategy

Medline, Embase, the Cochrane Library, HTA and APA PsycInfo were searched on 21 July 2020, limiting the search to papers published in English language in the last 20 years. Conference abstracts, non-systematic reviews, narrative reviews, commentaries, letters, editorials, guidelines, pre-publication prints, case reports and resource utilisation studies were excluded.

Database: Medline
Platform: Ovid
Version: Ovid MEDLINE(R) <1946 to July 17, 2020>
Search date: 21 Jul 2020
Number of results retrieved: 650
Search strategy:
Database: Ovid MEDLINE(R) <1946 to July 17, 2020>
Search Strategy:
---
1 Gender Dysphoria/ (485)
2 Gender Identity/ (18431)
3 "Sexual and Gender Disorders"/ (75)
4 Transsexualism/ (3758)
5 Transgender Persons/ (3134)
6 Health Services for Transgender Persons/ (136)
7 exp Sex Reassignment Procedures/ (835)
8 (gender* adj3 (dysphori* or incongru* or identi* or disorder* or confus* or minorit* or queer*)).tw. (7223)
9 (transgend* or transex* or transsex* or transfem* or transwom* or transma* or transmen* or transperson* or transpeopl*).tw. (12665)
10 (trans or crossgender* or cross-gender* or crossex* or cross-sex* or genderqueer*).tw. (102312)
11 ((sex or gender*) adj3 (reassign* or chang* or transform* or transition*)).tw. (6969)
12 (male-to-female or m2f or female-to-male or f2m).tw. (114785)
13 or/1-12 (252562)
14 exp Infant/ or Infant Health/ or Infant Welfare/ (1137237)
15 (prematur* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (852126)
16 exp Child/ or exp Child Behavior/ or Child Health/ or Child Welfare/ (1912796)
17 Minors/ (2572)
18 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (2360626)
19 exp pediatrics/ (58102)
20 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (835833)
21 Adolescent/ or Adolescent Behavior/ or Adolescent Health/ (2023650)
22 Puberty/ (13277)

23 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (424041)
24 Schools/ (38087)
25 Child Day Care Centers/ or exp Nurseries/ or Schools, Nursery/ (7199)
26 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (468784)
27 (("eight" or "nine" or "ten" or "eleven" or "twelve" or "thirteen" or "fourteen" or "fifteen" or "sixteen" or "seventeen" or "eighteen" or "nineteen") adj2 (year or years or age or ages or aged)).ti,ab. (89314)
28 (("8" or "9" or "10" or "11" or "12" or "13" or "14" or "15" or "16" or "17" or "18" or "19") adj2 (year or years or age or ages or aged)).ti,ab. (887443)
29 or/14-28 (5532185)
30 13 and 29 (79220)
31 (transchild* or transyouth* or transteen* or transadoles* or transgirl* or transboy*).tw. (7)
32 30 or 31 (79220)
33 Hormones/ad, tu, th (4514)
34 exp Progesterone/ad, tu, th (10899)
35 exp Estrogens/ad, tu, th (28936)
36 exp Gonadal Steroid Hormones/ad, tu, th (34137)
37 (progesteron* or oestrogen* or estrogen*).tw. (196074)
38 ((cross-sex or crosssex or gender-affirm*) and (hormon* or steroid* or therap* or treatment* or prescri* or pharm* or medici* or drug* or intervention* or care)).tw. (544)
39 exp Estradiol/ad, tu, th (10823)
40 exp Testosterone/ad, tu, th (8318)
41 (testosteron* or sustanon* or tostran or testogel or testim or restandol or andriol or testocaps* or nebido or testavan).tw. (74936)
42 (oestrad* or estrad* or evorel or ethinyloestrad* or ethinylestrad* or elleste or progynova or zumenon or bedol or femseven or nuvelle).tw. (90464)
43 or/33-42 (304239)
44 32 and 43 (3183)
45 limit 44 to yr="2000 -Current" (2019)
46 animals/ not humans/ (4685420)
47 45 not 46 (1194)
48 limit 47 to english language (1155)
49 (MEDLINE or pubmed).tw. (163678)
50 systematic review.tw. (121198)
51 systematic review.pt. (130231)
52 meta-analysis.pt. (117148)
53 intervention$.ti. (123904)
54 or/49-53 (380217)
55 randomized controlled trial.pt. (509468)
56 randomi?ed.mp. (796957)
57 placebo.mp. (194937)
58 or/55-57 (848627)
59 exp cohort studies/ or exp epidemiologic studies/ or exp clinical trial/ or exp evaluation studies as topic/ or exp statistics as topic/ (5562241)
60 ((control and (group* or study)) or (time and factors)).mp. (3274107)
61 (program or survey* or ci or cohort or comparative stud* or evaluation studies or follow-up*).mp. (4624419)
62 or/59-61 (9030680)
63 Observational Studies as Topic/ (5177)
64 Observational Study/ (81866)
65 Epidemiologic Studies/ (8358)

66 exp Case-Control Studies/ (1090891)
67 exp Cohort Studies/ (2011414)
68 Cross-Sectional Studies/ (332273)
69 Controlled Before-After Studies/ (526)
70 Historically Controlled Study/ (185)
71 Interrupted Time Series Analysis/ (913)
72 Comparative Study.pt. (1866044)
73 case control$.tw. (112152)
74 case series.tw. (59119)
75 (cohort adj (study or studies)).tw. (170281)
76 cohort analy$.tw. (6758)
77 (follow up adj (study or studies)).tw. (45131)
78 (observational adj (study or studies)).tw. (86247)
79 longitudinal.tw. (204239)
80 prospective.tw. (495367)
81 retrospective.tw. (442876)
82 cross sectional.tw. (284856)
83 or/63-82 (4368140)
84 54 or 58 or 62 or 83 (9402123)
85 48 and 84 (683)
86 limit 85 to (letter or historical article or comment or editorial or news or case reports) (33)
87 85 not 86 (650)

Database: Medline in-process
Platform: Ovid
Version: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <1946 to July 17, 2020>
Search date: 21 July 2020
Number of results retrieved: 122
Search strategy:
Database: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <1946 to July 17, 2020>
Search Strategy:
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1 Gender Dysphoria/ (0)
2 Gender Identity/ (0)
3 "Sexual and Gender Disorders"/ (0)
4 Transsexualism/ (0)
5 Transgender Persons/ (0)
6 Health Services for Transgender Persons/ (0)
7 exp Sex Reassignment Procedures/ (0)
8 (gender* adj3 (dysphori* or incongru* or identi* or disorder* or confus* or minorit* or queer*)).tw. (1473)
9 (transgend* or transex* or transsex* or transfem* or transwom* or transma* or transmen* or transperson* or transpeopl*).tw. (2315)
10 (trans or crossgender* or cross-gender* or crossex* or cross-sex* or genderqueer*).tw. (20821)
11 ((sex or gender*) adj3 (reassign* or chang* or transform* or transition*)).tw. (963)
12 (male-to-female or m2f or female-to-male or f2m).tw. (15453)
13 or/1-12 (39735)
14 exp Infant/ or Infant Health/ or Infant Welfare/ (0)
15 (prematur* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (80295)

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17 Minors/ (0)
18 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (320315)
19 exp pediatrics/ (0)
20 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (119124)
21 Adolescent/ or Adolescent Behavior/ or Adolescent Health/ (0)
22 Puberty/ (0)
23 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (59969)
24 Schools/ (0)
25 Child Day Care Centers/ or exp Nurseries/ or Schools, Nursery/ (0)
26 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (68979)
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29 or/14-28 (523053)
30 13 and 29 (9143)
31 (transchild* or transyouth* or transteen* or transadoles* or transgirl* or transboy*).tw. (3)
32 30 or 31 (9144)
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34 exp Progesterone/ad, tu, th (0)
35 exp Estrogens/ad, tu, th (0)
36 exp Gonadal Steroid Hormones/ad, tu, th (0)
37 (progesteron* or oestrogen* or estrogen*).tw. (13291)
38 ((cross-sex or crosssex or gender-affirm*) and (hormon* or steroid* or therap* or treatment* or prescri* or pharm* or medici* or drug* or intervention* or care)).tw. (241)
39 exp Estradiol/ad, tu, th (0)
40 exp Testosterone/ad, tu, th (0)
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43 or/33-42 (19706)
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47 45 not 46 (303)
48 limit 47 to english language (303)
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50 systematic review.tw. (29830)
51 systematic review.pt. (1007)
52 meta-analysis.pt. (49)
53 intervention$.ti. (21354)
54 or/49-53 (68976)
55 randomized controlled trial.pt. (277)
56 randomi?ed.mp. (74978)
57 placebo.mp. (18290)
58 or/55-57 (81427)
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62 or/59-61 (507046)
63 Observational Studies as Topic/ (0)
64 Observational Study/ (91)
65 Epidemiologic Studies/ (0)
66 exp Case-Control Studies/ (1)
67 exp Cohort Studies/ (1)
68 Cross-Sectional Studies/ (0)
69 Controlled Before-After Studies/ (0)
70 Historically Controlled Study/ (0)
71 Interrupted Time Series Analysis/ (0)
72 Comparative Study.pt. (46)
73 case control$.tw. (14451)
74 case series.tw. (13070)
75 (cohort adj (study or studies)).tw. (29119)
76 cohort analy$.tw. (1039)
77 (follow up adj (study or studies)).tw. (3540)
78 (observational adj (study or studies)).tw. (17421)
79 longitudinal.tw. (34485)
80 prospective.tw. (63689)
81 retrospective.tw. (73761)
82 cross sectional.tw. (60195)
83 or/63-82 (250805)
84 54 or 58 or 62 or 83 (687622)
85 48 and 84 (126)
86 limit 85 to (letter or historical article or comment or editorial or news or case reports) (4)
87 85 not 86 (122)

Database: Medline epubs ahead of print
Platform: Ovid
Version: Ovid MEDLINE(R) Epub Ahead of Print <July 17, 2020>
Search date: 21 July 2020
Number of results retrieved: 32
Search strategy:
Database: Ovid MEDLINE(R) Epub Ahead of Print <July 17, 2020>
Search Strategy:
---
1 Gender Dysphoria/ (0)
2 Gender Identity/ (0)
3 "Sexual and Gender Disorders"/ (0)
4 Transsexualism/ (0)
5 Transgender Persons/ (0)
6 Health Services for Transgender Persons/ (0)
7 exp Sex Reassignment Procedures/ (0)
8 (gender* adj3 (dysphori* or incongru* or identi* or disorder* or confus* or minorit* or queer*)).tw. (430)
9 (transgend* or transex* or transsex* or transfem* or transwom* or transma* or transmen* or transperson* or transpeopl*).tw. (637)
10 (trans or crossgender* or cross-gender* or crossex* or cross-sex* or genderqueer*).tw. (1499)
11 ((sex or gender*) adj3 (reassign* or chang* or transform* or transition*)).tw. (179)
12 (male-to-female or m2f or female-to-male or f2m).tw. (2460)

13 or/1-12 (4883)
14 exp Infant/ or Infant Health/ or Infant Welfare/ (0)
15 (prematur* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (15416)
16 exp Child/ or exp Child Behavior/ or Child Health/ or Child Welfare/ (0)
17 Minors/ (0)
18 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (53285)
19 exp pediatrics/ (0)
20 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (22649)
21 Adolescent/ or Adolescent Behavior/ or Adolescent Health/ (0)
22 Puberty/ (0)
23 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (13005)
24 Schools/ (0)
25 Child Day Care Centers/ or exp Nurseries/ or Schools, Nursery/ (0)
26 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (12420)
27 (("eight" or "nine" or "ten" or "eleven" or "twelve" or "thirteen" or "fourteen" or "fifteen" or "sixteen" or "seventeen" or "eighteen" or "nineteen") adj2 (year or years or age or ages or aged)).ti,ab. (1407)
28 (("8" or "9" or "10" or "11" or "12" or "13" or "14" or "15" or "16" or "17" or "18" or "19") adj2 (year or years or age or ages or aged)).ti,ab. (20083)
29 or/14-28 (87968)
30 13 and 29 (1618)
31 (transchild* or transyouth* or transteen* or transadoles* or transgirl* or transboy*).tw. (1)
32 30 or 31 (1618)
33 Hormones/ad, tu, th (0)
34 exp Progesterone/ad, tu, th (0)
35 exp Estrogens/ad, tu, th (0)
36 exp Gonadal Steroid Hormones/ad, tu, th (0)
37 (progesteron* or oestrogen* or estrogen*).tw. (1876)
38 ((cross-sex or crosssex or gender-affirm*) and (hormon* or steroid* or therap* or treatment* or prescri* or pharm* or medici* or drug* or intervention* or care)).tw. (63)
39 exp Estradiol/ad, tu, th (0)
40 exp Testosterone/ad, tu, th (0)
41 (testosteron* or sustanon* or tostran or testogel or testim or restandol or andriol or testocaps* or nebido or testavan).tw. (846)
42 (oestrad* or estrad* or evorel or ethinyloestrad* or ethinylestrad* or elleste or progynova or zumenon or bedol or femseven or nuvelle).tw. (665)
43 or/33-42 (2850)
44 32 and 43 (64)
45 limit 44 to yr="2000 -Current" (61)
46 animals/ not humans/ (0)
47 45 not 46 (61)
48 limit 47 to english language (61)
49 (MEDLINE or pubmed).tw. (7948)
50 systematic review.tw. (7508)
51 systematic review.pt. (28)
52 meta-analysis.pt. (37)
53 intervention$.ti. (4267)
54 or/49-53 (15048)
55 randomized controlled trial.pt. (1)

56 randomi?ed.mp. (14113)
57 placebo.mp. (3097)
58 or/55-57 (15128)
59 exp cohort studies/ or exp epidemiologic studies/ or exp clinical trial/ or exp evaluation studies as topic/ or exp statistics as topic/ (34)
60 ((control and (group* or study)) or (time and factors)).mp. (31615)
61 (program or survey* or ci or cohort or comparative stud* or evaluation studies or follow-up*).mp. (65735)
62 or/59-61 (88222)
63 Observational Studies as Topic/ (0)
64 Observational Study/ (4)
65 Epidemiologic Studies/ (0)
66 exp Case-Control Studies/ (0)
67 exp Cohort Studies/ (0)
68 Cross-Sectional Studies/ (0)
69 Controlled Before-After Studies/ (0)
70 Historically Controlled Study/ (0)
71 Interrupted Time Series Analysis/ (0)
72 Comparative Study.pt. (0)
73 case control$.tw. (2577)
74 case series.tw. (2480)
75 (cohort adj (study or studies)).tw. (7959)
76 cohort analy$.tw. (287)
77 (follow up adj (study or studies)).tw. (632)
78 (observational adj (study or studies)).tw. (3763)
79 longitudinal.tw. (7079)
80 prospective.tw. (12148)
81 retrospective.tw. (16600)
82 cross sectional.tw. (9459)
83 or/63-82 (48534)
84 54 or 58 or 62 or 83 (119752)
85 48 and 84 (32)
86 limit 85 to (letter or historical article or comment or editorial or news or case reports) (0)
87 85 not 86 (32)

Database: Medline daily update
Platform: Ovid
Version: Ovid MEDLINE(R) Daily Update <July 21, 2020>
Search date: 22 July 2020
Number of results retrieved: 3
Search strategy

Database: Ovid MEDLINE(R) Daily Update <July 21, 2020>
Search Strategy:
---
1 Gender Dysphoria/ (4)
2 Gender Identity/ (38)
3 "Sexual and Gender Disorders"/ (0)
4 Transsexualism/ (2)
5 Transgender Persons/ (26)
6 Health Services for Transgender Persons/ (1)
7 exp Sex Reassignment Procedures/ (3)
8 (gender* adj3 (dysphori* or incongru* or identi* or disorder* or confus* or minorit* or queer*)).tw. (22)

9 (transgend* or transex* or transsex* or transfem* or transwom* or transma* or transmen* or transperson* or transpeopl*).tw. (39)
10 (trans or crossgender* or cross-gender* or crossex* or cross-sex* or genderqueer*).tw. (87)
11 ((sex or gender*) adj3 (reassign* or chang* or transform* or transition*)).tw. (15)
12 (male-to-female or m2f or female-to-male or f2m).tw. (181)
13 or/1-12 (358)
14 exp Infant/ or Infant Health/ or Infant Welfare/ (932)
15 (prematur* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (981)
16 exp Child/ or exp Child Behavior/ or Child Health/ or Child Welfare/ (1756)
17 Minors/ (3)
18 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (3672)
19 exp pediatrics/ (75)
20 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (1658)
21 Adolescent/ or Adolescent Behavior/ or Adolescent Health/ (2006)
22 Puberty/ (8)
23 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (732)
24 Schools/ (56)
25 Child Day Care Centers/ or exp Nurseries/ or Schools, Nursery/ (5)
26 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (622)
27 (("eight" or "nine" or "ten" or "eleven" or "twelve" or "thirteen" or "fourteen" or "fifteen" or "sixteen" or "seventeen" or "eighteen" or "nineteen") adj2 (year or years or age or ages or aged)).ti,ab. (98)
28 (("8" or "9" or "10" or "11" or "12" or "13" or "14" or "15" or "16" or "17" or "18" or "19") adj2 (year or years or age or ages or aged)).ti,ab. (1301)
29 or/14-28 (6705)
30 13 and 29 (130)
31 (transchild* or transyouth* or transteen* or transadoles* or transgirl* or transboy*).tw. (0)
32 30 or 31 (130)
33 Hormones/ad, tu, th (3)
34 exp Progesterone/ad, tu, th (3)
35 exp Estrogens/ad, tu, th (8)
36 exp Gonadal Steroid Hormones/ad, tu, th (22)
37 (progesteron* or oestrogen* or estrogen*).tw. (161)
38 ((cross-sex or crosssex or gender-affirm*) and (hormon* or steroid* or therap* or treatment* or prescri* or pharm* or medici* or drug* or intervention* or care)).tw. (3)
39 exp Estradiol/ad, tu, th (8)
40 exp Testosterone/ad, tu, th (8)
41 (testosteron* or sustanon* or tostran or testogel or testim or restandol or andriol or testocaps* or nebido or testavan).tw. (79)
42 (oestrad* or estrad* or evorel or ethinyloestrad* or ethinylestrad* or elleste or progynova or zumenon or bedol or femseven or nuvelle).tw. (61)
43 or/33-42 (261)
44 32 and 43 (7)
45 limit 44 to yr="2000 -Current" (7)
46 animals/ not humans/ (3647)
47 45 not 46 (6)
48 limit 47 to english language (6)
49 (MEDLINE or pubmed).tw. (529)
50 systematic review.tw. (512)

51 systematic review.pt. (522)
52 meta-analysis.pt. (370)
53 intervention$.ti. (247)
54 or/49-53 (1065)
55 randomized controlled trial.pt. (595)
56 randomi?ed.mp. (1203)
57 placebo.mp. (219)
58 or/55-57 (1234)
59 exp cohort studies/ or exp epidemiologic studies/ or exp clinical trial/ or exp evaluation studies as topic/ or exp statistics as topic/ (7958)
60 ((control and (group* or study)) or (time and factors)).mp. (4307)
61 (program or survey* or ci or cohort or comparative stud* or evaluation studies or follow-up*).mp. (5828)
62 or/59-61 (11814)
63 Observational Studies as Topic/ (27)
64 Observational Study/ (449)
65 Epidemiologic Studies/ (7)
66 exp Case-Control Studies/ (2173)
67 exp Cohort Studies/ (3287)
68 Cross-Sectional Studies/ (837)
69 Controlled Before-After Studies/ (1)
70 Historically Controlled Study/ (0)
71 Interrupted Time Series Analysis/ (6)
72 Comparative Study.pt. (768)
73 case control$.tw. (182)
74 case series.tw. (139)
75 (cohort adj (study or studies)).tw. (561)
76 cohort analy$.tw. (22)
77 (follow up adj (study or studies)).tw. (40)
78 (observational adj (study or studies)).tw. (253)
79 longitudinal.tw. (429)
80 prospective.tw. (778)
81 retrospective.tw. (1032)
82 cross sectional.tw. (739)
83 or/63-82 (5471)
84 54 or 58 or 62 or 83 (12581)
85 48 and 84 (3)
86 limit 85 to (letter or historical article or comment or editorial or news or case reports) (0)
87 85 not 86 (3)

Database: Embase
Platform: Ovid
Version: Embase <1974 to 2020 July 22>
Search date: 23 July 2020
Number of results retrieved: 1207
Search strategy:

Database: Embase <1974 to 2020 July 22>
Search Strategy:
---
1 exp Gender Dysphoria/ (5399)
2 Gender Identity/ (16820)
3 "Sexual and Gender Disorders"/ (24689)
4 Transsexualism/ (3869)
5 exp Transgender/ (6597)

6 Health Services for Transgender Persons/ (158848)
7 exp Sex Reassignment Procedures/ (1108)
8 (gender* adj3 (dysphori* or incongru* or identi* or disorder* or confus* or minorit* or queer*)).tw. (12470)
9 (transgend* or transex* or transsex* or transfem* or transwom* or transma* or transmen* or transperson* or transpeopl*).tw. (22509)
10 (trans or crossgender* or cross-gender* or crossex* or cross-sex* or genderqueer*).tw. (154446)
11 ((sex or gender*) adj3 (reassign* or chang* or transform* or transition*)).tw. (10327)
12 (male-to-female or m2f or female-to-male or f2m).tw. (200166)
13 or/1-12 (581748)
14 exp juvenile/ or Child Behavior/ or Child Welfare/ or Child Health/ or infant welfare/ or "minor (person)"/ or elementary student/ or adolescent health/ or middle school student/ or high school student/ (3440943)
15 (prematur* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (1186161)
16 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (3586795)
17 exp pediatrics/ (106214)
18 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (1491597)
19 exp adolescence/ or exp adolescent behavior/ or adolescent health/ or high school student/ or middle school student/ (105108)
20 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (641660)
21 school/ or high school/ or kindergarten/ or middle school/ or primary school/ or nursery school/ or day care/ (103791)
22 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (687437)
23 (("eight" or "nine" or "ten" or "eleven" or "twelve" or "thirteen" or "fourteen" or "fifteen" or "sixteen" or "seventeen" or "eighteen" or "nineteen") adj2 (year or years or age or ages or aged)).ti,ab. (138908)
24 (("8" or "9" or "10" or "11" or "12" or "13" or "14" or "15" or "16" or "17" or "18" or "19") adj2 (year or years or age or ages or aged)).ti,ab. (1562903)
25 or/14-24 (7130881)
26 13 and 25 (181778)
27 (transchild* or transyouth* or transteen* or transadoles* or transgirl* or transboy*).tw. (17)
28 26 or 27 (181778)
29 hormone/bd, ad, an, cr, do, it, dt, to, ei, ih, ia, ar, cv, dl, im, na, ip, ut, va, iv, ve, vi, po, pa, pr, sc, li, th, tp, td (5160)
30 exp progesterone derivative/bd, ad, an, cr, do, it, dt, to, ei, ih, ia, ar, cv, dl, im, na, ip, ut, va, iv, ve, vi, po, pa, pr, sc, li, th, tp, td (23479)
31 exp estrogen/bd, ad, an, cr, do, it, dt, to, ei, ih, ia, ar, cv, dl, im, na, ip, ut, va, iv, ve, vi, po, pa, pr, sc, li, th, tp, td (57641)
32 steroid hormone/bd, ad, an, cr, do, it, dt, to, ei, ih, ia, ar, cv, dl, im, na, ip, ut, va, iv, ve, vi, po, pa, pr, sc, li, th, tp, td (372)
33 sex hormone/bd, ad, an, cr, do, it, dt, to, ei, ih, ia, ar, cv, dl, im, na, ip, ut, va, iv, ve, vi, po, pa, pr, sc, li, th, tp, td (1984)
34 hormonal therapy/ (42222)
35 (progesteron* or oestrogen* or estrogen*).tw. (254142)
36 ((cross-sex or crosssex or gender-affirm*) and (hormon* or steroid* or therap* or treatment* or prescri* or pharm* or medici* or drug* or intervention* or care)).tw. (1224)
37 exp estradiol derivative/bd, ad, an, cr, do, it, dt, to, ei, ih, ia, ar, cv, dl, im, na, ip, ut, va, iv, ve, vi, po, pa, pr, sc, li, th, tp, td (30740)

38 exp testosterone derivative/bd, ad, an, cr, do, it, dt, to, ei, ih, ia, ar, cv, dl, im, na, ip, ut, va, iv, ve, vi, po, pa, pr, sc, li, th, tp, td (15868)
39 (testosteron* or sustanon* or tostran or testogel or testim or restandol or andriol or testocaps* or nebido or testavan).tw. (99596)
40 (oestrad* or estrad* or evorel or ethinyloestrad* or ethinylestrad* or elleste or progynova or zumenon or bedol or femseven or nuvelle).tw. (114290)
41 or/29-40 (438737)
42 28 and 41 (6053)
43 limit 42 to yr="2000 -Current" (4741)
44 nonhuman/ not human/ (4649157)
45 43 not 44 (3636)
46 limit 45 to english language (3513)
47 (MEDLINE or pubmed).tw. (261145)
48 exp systematic review/ or systematic review.tw. (302985)
49 meta-analysis/ (191173)
50 intervention$.ti. (200041)
51 or/47-50 (660206)
52 random:.tw. (1552336)
53 placebo:.mp. (455979)
54 double-blind:.tw. (210671)
55 or/52-54 (1807280)
56 cohort analysis/ (596360)
57 exp epidemiology/ (3434332)
58 exp clinical trial/ (1504711)
59 evaluation study/ (45870)
60 statistics/ (301181)
61 ((control and (group* or study)) or (time and factors)).mp. (3324555)
62 (program or survey* or ci or cohort or comparative stud* or evaluation studies or follow-up*).mp. (6067112)
63 or/56-62 (11048972)
64 Clinical study/ (155444)
65 Case control study/ (157943)
66 Family study/ (26047)
67 Longitudinal study/ (141660)
68 Retrospective study/ (937696)
69 comparative study/ (859061)
70 Prospective study/ (613138)
71 Randomized controlled trials/ (182542)
72 70 not 71 (606604)
73 Cohort analysis/ (596360)
74 cohort analy$.tw. (13020)
75 (Cohort adj (study or studies)).tw. (302159)
76 (Case control$ adj (study or studies)).tw. (137432)
77 (follow up adj (study or studies)).tw. (63423)
78 (observational adj (study or studies)).tw. (168428)
79 (epidemiologic$ adj (study or studies)).tw. (106448)
80 (cross sectional adj (study or studies)).tw. (220073)
81 case series.tw. (104089)
82 prospective.tw. (861922)
83 retrospective.tw. (886445)
84 or/64-69,72-83 (4047788)
85 51 or 55 or 63 or 84 (12494560)
86 46 and 85 (2151)
87 86 not (letter or editorial).pt. (2137)

88 87 not (conference abstract or conference paper or conference proceeding or "conference review").pt. (1207)

Database: APA PsycInfo

Platform: Ovid
Version: APA PsycInfo <1806 to July Week 2 2020>
Search date: 22 July 2020
Number of results retrieved: 581
Search strategy:

Database: APA PsycInfo <1806 to July Week 2 2020>
Search Strategy:
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1 Gender Dysphoria/ (936)
2 Gender Identity/ (8648)
3 Transsexualism/ (2825)
4 Transgender/ (5257)
5 exp Gender Reassignment/ (568)
6 (gender* adj3 (dysphori* or incongruen* or identi* or disorder* or confus* or minorit* or queer*)).tw. (15276)
7 (transgend* or transex* or transsex* or transfem* or transwom* or transma* or transmen* or transperson* or transpeopl*).tw. (13028)
8 (trans or crossgender* or cross-gender* or crossex* or cross-sex* or genderqueer*).tw. (7679)
9 ((sex or gender*) adj3 (reassign* or chang* or transform* or transition*)).tw. (5796)
10 (male-to-female or m2f or female-to-male or f2m).tw. (63688)
11 or/1-10 (99498)
12 exp Infant Development/ (21841)
13 (prematur* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*).ti,ab,in,jn. (150219)
14 Child Characteristics/ or exp Child Behavior/ or Child Psychology/ or exp Child Welfare/ or Child Psychiatry/ (23423)
15 (child* or minor or minors or boy* or girl* or kid or kids or young*).ti,ab,in,jn. (984230)
16 (pediatric* or paediatric* or peadiatric*).ti,ab,in,jn. (78962)
17 Adolescent Psychiatry/ or Adolescent Behavior/ or Adolescent Development/ or Adolescent Psychology/ or Adolescent Characteristics/ or Adolescent Health/ (62142)
18 Puberty/ (2753)
19 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*).ti,ab,in,jn. (347604)
20 Schools/ (29181)
21 Child Day Care/ or Nursery Schools/ (2836)
22 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*).ti,ab,jn. (772814)
23 (("eight" or "nine" or "ten" or "eleven" or "twelve" or "thirteen" or "fourteen" or "fifteen" or "sixteen" or "seventeen" or "eighteen" or "nineteen") adj2 (year or years or age or ages or aged)).ti,ab. (21475)
24 (("8" or "9" or "10" or "11" or "12" or "13" or "14" or "15" or "16" or "17" or "18" or "19") adj2 (year or years or age or ages or aged)).ti,ab. (285697)
25 or/12-24 (1765408)
26 11 and 25 (49560)
27 (transchild* or transyouth* or transteen* or transadoles* or transgirl* or transboy*).tw. (14)

28 26 or 27 (49561)
29 hormones/ (8408)
30 sex hormones/ (1777)
31 exp progestational hormones/ (2409)
32 estrogens/ (3889)
33 steroids/ (3797)
34 (progesteron* or oestrogen* or estrogen*).tw. (11188)
35 ((cross-sex or crosssex or gender-affirm*) and (hormon* or steroid* or therap* or treatment* or prescri* or pharm* or medici* or drug* or intervention* or care)).tw. (457)
36 estradiol/ (3120)
37 testosterone/ (5606)
38 (testosteron* or sustanon* or tostran or testogel or testim or restandol or andriol or testocaps* or nebido or testavan).tw. (9625)
39 (oestrad* or estrad* or evorel or ethinyloestrad* or ethinylestrad* or elleste or progynova or zumenon or bedol or femseven or nuvelle).tw. (6741)
40 or/29-39 (30344)
41 28 and 40 (1005)
42 limit 41 to yr="2000 -Current" (749)
43 limit 42 to english language (692)
44 limit 43 to ("0200 book" or "0240 authored book" or "0280 edited book" or "0300 encyclopedia" or "0400 dissertation abstract") (111)
45 43 not 44 (581)

Database: Cochrane Library – incorporating Cochrane Database of Systematic Reviews (CDSR); CENTRAL

Platform: Wiley
Version:
CDSR –Issue 7 of 12, July 2020
CENTRAL – Issue 7 of 12, July 2020
Search date: 22 July 2020
Number of results retrieved: CDSR 0 ; CENTRAL 67.

ID Search Hits
#1 MeSH descriptor: [Gender Dysphoria] this term only 3
#2 MeSH descriptor: [Gender Identity] this term only 227
#3 MeSH descriptor: [Sexual and Gender Disorders] this term only 2
#4 MeSH descriptor: [Transsexualism] this term only 27
#5 MeSH descriptor: [Transgender Persons] this term only 36
#6 MeSH descriptor: [Health Services for Transgender Persons] this term only 0
#7 MeSH descriptor: [Sex Reassignment Procedures] explode all trees 4
#8 (gender* near/3 (dysphori* or incongru* or identi* or disorder* or confus* or minorit* or queer*)):ti,ab,kw 702
#9 (transgend* or transex* or transsex* or transfem* or transwom* or transma* or transmen* or transperson* or transpeopl*):ti,ab,kw 959
#10 (trans or crossgender* or cross-gender* or crossex* or cross-sex* or genderqueer*):ti,ab,kw 3969
#11 ((sex or gender*) near/3 (reassign* or chang* or transform* or transition*)):ti,ab,kw 524
#12 (male-to-female or m2f or female-to-male or f2m):ti,ab,kw 516
#13 #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 6413
#14 MeSH descriptor: [Infant] explode all trees 28440
#15 MeSH descriptor: [Infant Health] this term only 49
#16 MeSH descriptor: [Infant Welfare] this term only 82

#17 (prematur* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*):ti,ab,kw,so 89530
#18 MeSH descriptor: [Child] explode all trees 44089
#19 MeSH descriptor: [Child Behavior] explode all trees 2061
#20 MeSH descriptor: [Child Health] this term only 98
#21 MeSH descriptor: [Child Welfare] this term only 325
#22 MeSH descriptor: [Minors] this term only 8
#23 (child* or minor or minors or boy* or girl* or kid or kids or young*):ti,ab,kw,so 265417
#24 MeSH descriptor: [Pediatrics] explode all trees 661
#25 (pediatric* or paediatric* or peadiatric*):ti,ab,kw,so 57725
#26 MeSH descriptor: [Adolescent] this term only 102154
#27 MeSH descriptor: [Adolescent Behavior] this term only 1358
#28 MeSH descriptor: [Adolescent Health] this term only29
#29 MeSH descriptor: [Puberty] this term only 295
#30 (adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*):ti,ab,kw,so 140927
#31 MeSH descriptor: [Schools] this term only 1914
#32 MeSH descriptor: [Child Day Care Centers] this term only 231
#33 MeSH descriptor: [Nurseries, Infant] explode all trees 17
#34 MeSH descriptor: [Schools, Nursery] this term only 37
#35 (pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*):ti,ab,kw,so 97810
#36 (("eight" or "nine" or "ten" or "eleven" or "twelve" or "thirteen" or "fourteen" or "fifteen" or "sixteen" or "seventeen" or "eighteen" or "nineteen") near/2 (year or years or age or ages or aged)):ti,ab 6710
#37 (("8" or "9" or "10" or "11" or "12" or "13" or "14" or "15" or "16" or "17" or "18" or "19") near/2 (year or years or age or ages or aged)):ti,ab 196881
#38 #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23 or #24 or #25 or #26 or #27 or #28 or #29 or #30 or #31 or #32 or #33 or #34 or #35 or #36 or #37 516067
#39 #13 and #38 2488
#40 (transchild* or transyouth* or transteen* or transadoles* or transgirl* or transboy*):ti,ab,kw 0
#41 #39 or #40 2488
#42 MeSH descriptor: [Hormones] this term only 2241
#43 MeSH descriptor: [Progesterone] explode all trees 3135
#44 MeSH descriptor: [Estrogens] explode all trees 1841
#45 MeSH descriptor: [Gonadal Steroid Hormones] explode all trees 10747
#46 (progesteron* or oestrogen* or estrogen*):ti,ab,kw 18387
#47 ((cross-sex or crosssex or gender-affirm*) and (hormon* or steroid* or therap* or treatment* or prescri* or pharm* or medici* or drug* or intervention* or care)):ti,ab,kw 24
#48 MeSH descriptor: [Estradiol] explode all trees 4434
#49 MeSH descriptor: [Testosterone] explode all trees 2945
#50 (testosteron* or sustanon* or tostran or testogel or testim or restandol or andriol or testocaps* or nebido or testavan):ti,ab,kw 7386
#51 (oestrad* or estrad* or evorel or ethinyloestrad* or ethinylestrad* or elleste or progynova or zumenon or bedol or femseven or nuvelle):ti,ab,kw 11410
#52 #42 or #43 or #44 or #45 or #46 or #47 or #48 or #49 or #50 or #51 31870
#53 #41 and #52 121
#54 "conference":pt or (clinicaltrials or trialsearch):so 492465
#55 #53 not #54 72

Database: HTA

Platform: Wiley
Version: up to 2018
Search date: 22nd July 2020
Number of results retrieved: 4
Search strategy:

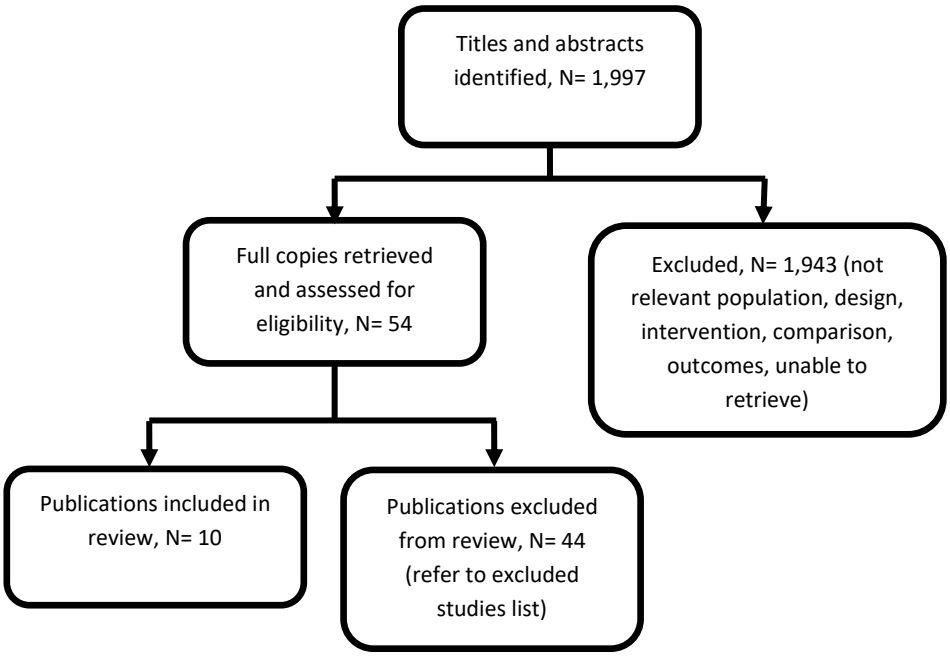
#1 MeSH DESCRIPTOR Gender Dysphoria 0
#2 MeSH DESCRIPTOR Gender Identity 12
#3 MeSH DESCRIPTOR Sexual and Gender Disorders 2
#4 MeSH DESCRIPTOR Transsexualism 12
#5 MeSH DESCRIPTOR Transgender Persons 3
#6 MeSH DESCRIPTOR Health Services for Transgender Persons 0
#7 MeSH DESCRIPTOR Sex Reassignment Procedures EXPLODE ALL TREES 1
#8 ((gender* near3 (dysphori* or incongru* or identi* or disorder* or confus* or minorit* or queer*))) 28
#9 ((transgend* or transex* or transsex* or transfem* or transwom* or transma* or transmen* or transperson* or transpeopl*)) 76
#10 ((trans or crossgender* or cross-gender* or crossex* or cross-sex* or genderqueer*)) 83
#11 (((sex or gender*) near3 (reassign* or chang* or transform* or transition*))) 24
#12 ((male-to-female or m2f or female-to-male or f2m)) 86
#13 #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 261
#14 MeSH DESCRIPTOR Infant EXPLODE ALL TREES 2964
#15 MeSH DESCRIPTOR Infant Health 0
#16 MeSH DESCRIPTOR Infant Welfare 22
#17 ((prematur* or pre-matur* or preterm* or pre-term* or infan* or newborn* or new-born* or perinat* or peri-nat* or neonat* or neo-nat* or baby* or babies or toddler*)) 5510
#18 MeSH DESCRIPTOR Child EXPLODE ALL TREES 4935
#19 MeSH DESCRIPTOR Child Behavior EXPLODE ALL TREES 64
#20 MeSH DESCRIPTOR Child Health 2
#21 MeSH DESCRIPTOR Child Welfare 80
#22 MeSH DESCRIPTOR Minors 2
#23 ((child* or minor or minors or boy* or girl* or kid or kids or young*)) 13575
#24 MeSH DESCRIPTOR Pediatrics EXPLODE ALL TREES 119
#25 ((pediatric* or paediatric* or peadiatric*)) 2842
#26 MeSH DESCRIPTOR Adolescent 4594
#27 MeSH DESCRIPTOR Adolescent Behavior 94
#28 MeSH DESCRIPTOR Adolescent Health 0
#29 MeSH DESCRIPTOR Puberty 3
#30 ((adolescen* or pubescen* or prepubescen* or pre-pubescen* or pubert* or prepubert* or pre-pubert* or teen* or preteen* or pre-teen* or juvenil* or youth* or under*age*)) 5621
#31 MeSH DESCRIPTOR Schools 168
#32 MeSH DESCRIPTOR Child Day Care Centers 12
#33 MeSH DESCRIPTOR Schools, Nursery 3
#34 ((pre-school* or preschool* or kindergar* or daycare or day-care or nurser* or school* or pupil* or student*)) 4454
#35 ((("eight" or "nine" or "ten" or "eleven" or "twelve" or "thirteen" or "fourteen" or "fifteen" or "sixteen" or "seventeen" or "eighteen" or "nineteen") near2 (year or years or age or ages or aged))) 380
#36 ((("8" or "9" or "10" or "11" or "12" or "13" or "14" or "15" or "16" or "17" or "18" or "19") near2 (year or years or age or ages or aged))) 7996

#37 #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #36 22640
#38 #13 AND #37 116
#39 (#13 AND #37) IN HTA 4

Appendix C Evidence selection

The literature searches identified 1,997 references. These were screened using their titles and abstracts and 54 references were obtained and assessed for relevance. Of these, 10 references are included in the evidence review. The remaining 44 references were excluded and are listed in appendix D.

Figure 1 – Study selection flow diagram



References submitted with Preliminary Policy Proposal

There is no preliminary policy proposal for this policy.

Appendix D Excluded studies table

Study reference	Reason for exclusion
Aranda G, Mora M, Hanzu FA et al. (2019) Effects of sex steroids on cardiovascular risk profile in transgender men under gender affirming hormone therapy. Endocrinologia, diabetes y nutricion 66(6): 385–392	Excluded on population – adult study, participants not 18 years or less (mean age 27.1 years).
Arnold, Justin D, Sarkodie, Eleanor P, Coleman, Megan E et al. (2016) Incidence of Venous Thromboembolism in Transgender Women	Excluded on population – adult study, participants not 18 years or less (mean age 33.2 years).

Study reference	Reason for exclusion
Receiving Oral Estradiol. The journal of sexual medicine 13(11): 1773–1777	
Asscheman, Henk, Giltay, Erik J, Megens, Jos A J et al. (2011) A long-term follow-up study of mortality in transsexuals receiving treatment with cross-sex hormones. European journal of endocrinology 164(4): 635–42	Excluded on population – although some participants started gender-affirming hormones when young, the study does not report the proportion who started treatment when 18 years or less. Mean ages at start of treatment were 31.4 years (transfemales) and 26.1 years (transmales), suggesting the majority of participants were older than 18 years at the start of treatment. Outcomes not reported separately for people aged 18 years or less.
Author not, found (2014) Hormone therapy for the treatment of gender dysphoria. Lansdale, PA: HAYES, Inc	Full text paper not available.
Baba, T., Endo, T., Honnma, H. et al. (2007) Association between polycystic ovary syndrome and female-to-male transsexuality. Human Reproduction 22(4): 1011–1016	Excluded on population – although study included some younger people (age range 17 to 47), most participants were adults (mean age around 25 years) and the proportion who started treatment when 18 years or less is not reported. Outcomes not reported separately for people aged 18 years or less.
Becerra-Fernandez A, Perez-Lopez G, Roman MM et al. (2014) Prevalence of hyperandrogenism and polycystic ovary syndrome in female to male transsexuals. Endocrinologia y Nutricion: Organo de la Sociedad Espanola de Endocrinologia y Nutricion 61(7): 351–8	Excluded on population – although study included some younger people (age range 18 to 45), most participants were adults (mean age around 25 years) and the proportion who started treatment when 18 years or less is not reported. Outcomes not reported separately for people aged 18 years or less.
Becker I, Auer M, Barkmann C et al. (2018) A Cross-Sectional Multicenter Study of Multidimensional Body Image in Adolescents and Adults with Gender Dysphoria Before and After Transition-Related Medical Interventions. Archives of Sexual Behavior 47(8): 2335–2347	Excluded on population – study included people aged 14 to 21 years. Outcomes not reported separately for people aged 18 years or less. Better evidence available – only 11 participants received gender-affirming hormones. The majority of the study cohort were either pre-treatment, received puberty suppression alone, or received hormones and underwent surgery.
Chew D, Anderson J, Williams K et al. (2018) Hormonal Treatment in Young People With Gender Dysphoria: A Systematic Review. Pediatrics 141(4): e20173742	Excluded on better available evidence - systematic review did not meta-analyse results from. Individual studies from this systematic review are either

Study reference	Reason for exclusion
	included, or excluded because they did not meet the PICO criteria.
Connolly MD, Zervos MJ, Barone CJ 2nd et al. (2016) The Mental Health of Transgender Youth: Advances in Understanding. The Journal of Adolescent Health: Official Publication of the Society for Adolescent Medicine 59(5): 489–495	Excluded on intervention - review did not investigate gender-affirming hormones
de Vries ALC, McGuire JK, Steensma TD et al. (2014) Young adult psychological outcome after puberty suppression and gender reassignment. Pediatrics 134(4): 696–704	Exclude on intervention – all participants had surgery after gender-affirming hormones. Unable to determine whether changes were due to hormones or surgery. Complete data only available for 40 patients. Details of gender-affirming hormones are poorly reported. Outcomes reported in other study (with a population that more closely matches PICO)
Elamin MB, Garcia MZ, Murad MH et al. (2010) Effect of sex steroid use on cardiovascular risk in transsexual individuals: a systematic review and meta-analyses. Clinical Endocrinology 72(1): 1–10	Exclude on population – all included studies conducted in adult population. Unclear whether hormones were started when participants were aged 18 years or less. Outcomes not reported by age at treatment initiation.
Fernandez JD and Tannock LR (2016) Metabolic effects of hormone therapy in transgender patients. Endocrine Practice: Official Journal of the American College of Endocrinology and the American Association of Clinical Endocrinologists 22(4): 383–8	Excluded on population – adult study, participants not 18 years or less (mean ages 31 and 27 years).
Fighera TM, Ziegelmann PK, Da Silva TR et al. (2019) Bone mass effects of cross-sex hormone therapy in transgender people: Updated systematic review and meta-analysis. Journal of the Endocrine Society 3(5): 943–964	Excluded on population – all included studies conducted in adult population. Unclear whether hormones were started when participants were aged 18 years or less. Outcomes not reported by age at treatment initiation.
Getahun D, Nash R, Flanders WD et al. (2018) Cross-sex Hormones and Acute Cardiovascular Events in Transgender Persons: A Cohort Study. Annals of Internal Medicine 169(4): 205–213	Excluded on population – adult study, participants not 18 years or less.
Gomez-Gil E, Zubiaurre-Elorza L, de Antonio IE et al. (2014) Determinants of quality of life in Spanish transsexuals attending a gender unit before genital sex reassignment surgery. Quality of Life Research: an International Journal of Quality of Life Aspects of Treatment, Care and Rehabilitation 23(2): 669–76	Excluded on population – although study included some younger people (age range 16 to 67), most participants were adults (mean age 31.2 years) and the proportion who started treatment when 18 years or less is not reported. Outcomes not reported separately for people aged 18 years or less.
Gomez-Gil E, Zubiaurre-Elorza L, Esteva I et al. (2012) Hormone-treated transsexuals report less	Excluded on population – adult study, participants not 18 years or less (mean age 24.6 years).

Study reference	Reason for exclusion
social distress, anxiety and depression. Psychoneuroendocrinology 37(5): 662–70	
Gooren LJ, van Trotsenburg MAA, Giltay EJ et al. (2013) Breast cancer development in transsexual subjects receiving cross-sex hormone treatment. The Journal of Sexual Medicine 10(12): 3129–34	Excluded on population – study reports on cancer rates in people aged 18-80 years. The 3 cases of cancer all started gender-affirming hormone treatment >18 years.
Grimstad FW, Boskey E, Grey M (2020) New-Onset Abdominopelvic Pain After Initiation of Testosterone Therapy Among TransMasculine Persons: A Community-Based Exploratory Survey. LGBT health 7(5): Published Online:13 Jul 2020https://doi.org/10.1089/lgbt.2019.0258	Excluded on population – adult study, participants not 18 years or less.
Hannema SE, Schagen SEE, Cohen-Kettenis PT et al. (2017) Efficacy and Safety of Pubertal Induction Using 17beta-Estradiol in Transgirls. The Journal of Clinical Endocrinology and Metabolism 102(7): 2356–2363	Excluded on better evidence available – small study (n=28) with high drop-out rate (n=16 at final follow-up). Same outcomes reported in larger studies.
Jarin J, Pine-Twaddell E, Trotman G et al. (2017) Cross-Sex Hormones and Metabolic Parameters in Adolescents With Gender Dysphoria. Pediatrics 139(5)	Excluded on population and better evidence available. Although the study included some younger people (age range 13 to 25; mean age 16 and 18), the proportion who started treatment when 18 years or less is not reported. Outcomes not reported separately for people aged 18 years or less. Outcomes were limited to physiological results (including haemoglobin, lipids and BMI). Follow-up only 6 months, other included studies report same outcomes with longer follow-up (12 to 31 months).
Keo-Meier CL, Herman LI, Reisner SL et al. (2015) Testosterone treatment and MMPI-2 improvement in transgender men: a prospective controlled study. Journal of consulting and clinical psychology 83(1): 143–56	Excluded on population – although study included some younger people (age range 18 to 54), most participants were adults (mean age 26.6 years) and the proportion who started treatment when 18 years or less is not reported. Outcomes not reported separately for people aged 18 years or less.
Klaver M, de Mutsert R, Wiepjes CM et al. (2018) Early Hormonal Treatment Affects Body Composition and Body Shape in Young Transgender Adolescents. The Journal of Sexual Medicine 15(2): 251–260	Excluded on outcomes – reported outcomes not included in PICO document. The risk of obesity with gender-affirmed hormones was reported in an included study.
McFarlane T, Zajac JD, Cheung AS (2018) Gender-affirming hormone therapy and the risk of sex hormone-dependent tumours in transgender individuals-A systematic review. Clinical Endocrinology 89(6): 700-711	Exclude on population – all included studies conducted in adult population.

Study reference	Reason for exclusion
Meriggiola MC, Armillotta F, Costantino A et al. (2008) Effects of testosterone undecanoate administered alone or in combination with letrozole or dutasteride in female to male transsexuals. The Journal of Sexual Medicine 5(10): 2442–53	Excluded on population – adult study, participants not 18 years or less.
Nota NM, Wiepjes CM, de Blok, CJM et al. (2018) The occurrence of benign brain tumours in transgender individuals during cross-sex hormone treatment. Brain: A Journal of Neurology 141(7): 2047–2054	Excluded on population – adult study, participants not 18 years or less.
Oda H and Kinoshita T (2017) Efficacy of hormonal and mental treatments with MMPI in FtM individuals: Cross-sectional and longitudinal studies. BMC Psychiatry 17(1): 256	Excluded on population – although study included some younger people (age range 15 to 43), most participants were adults (mean age around 25.6 years) and the proportion who started treatment when 18 years or less is not reported. Outcomes not reported separately for people aged 18 years or less.
Olson-Kennedy J, Okonta V, Clark LF et al. (2018) Physiologic Response to Gender-Affirming Hormones Among Transgender Youth. The Journal of Adolescent Health: Official Publication of the Society for Adolescent Medicine 62(4): 397–401	Excluded on population – although study included some younger people (age range 12 to 23; mean age 18 years). Outcomes not reported separately for people aged 18 years or less. Outcomes limited to physiological results (including haemoglobin, lipids, liver enzymes and BMI). Same outcomes reported in included studies that had a less indirect population and a longer follow-up.
Ott J, Kaufmann U, Bentz K et al. (2010) Incidence of thrombophilia and venous thrombosis in transsexuals under cross-sex hormone therapy. Fertility and sterility 93(4): 1267–72	Excluded on population – adult study, participants not 18 years or less.
Pakpoor J, Wotton CJ, Schmierer K et al. (2016) Gender identity disorders and multiple sclerosis risk: A national record-linkage study. Multiple sclerosis. Multiple Sclerosis Journal. 22(13): 1759–1762	Excluded on population – although study included some younger people, outcomes not reported separately for people aged 18 years or less. Also exclude for intervention – unclear if people received gender-affirming hormones.
Pyra M, Casimiro I, Rusie L et al. (2020) An Observational Study of Hypertension and Thromboembolism among Transgender Patients Using Gender-Affirming Hormone Therapy. Transgender Health 5(1): 1–9	Excluded on population – adult study (age range 20-70). Age at which gender-affirming hormones started not reported.
Quiros C, Patrascioiu I, Mora M et al. (2015) Effect of cross-sex hormone treatment on cardiovascular risk factors in transsexual individuals. Experience in a specialized unit in Catalonia. Endocrinologia y nutricion : organo de la Sociedad Espanola de Endocrinologia y Nutricion 62(5): 210–6	Excluded on population – adult study, participants not 18 years or less.

Study reference	Reason for exclusion
Rowniak S, Bolt L, Sharifi C (2019) Effect of cross-sex hormones on the quality of life, depression and anxiety of transgender individuals: A quantitative systematic review. JBI Database of Systematic Reviews and Implementation Reports 17(9): 1826–1854	Exclude on population – all included studies conducted in adult population.
Sequeira GM, Kidd K, El Nokali NE et al. (2019) Early Effects of Testosterone Initiation on Body Mass Index in Transmasculine Adolescents. Journal of Adolescent Health 65(6): 818–820	Exclude on outcome - study only reports BMI z-score over 12 month testosterone treatment. BMI not listed as an outcome of interest in the PICO document. Other included studies have investigated the impact of gender-affirming hormone treatment on CV risk profile, including longer term obesity rates, with a longer follow-up and more participants.
Shim JY, Laufer MR, Grimstad FW (2020) Dysmenorrhea and Endometriosis in Transgender Adolescents. Journal of Pediatric and Adolescent Gynecology. Available online 11 June 2020. https://doi.org/10.1016/j.jpag.2020.06.001	Exclude on population – only 2 participants taking testosterone before diagnosis of dysmenorrhea.
Slabbekoorn D, Van Goozen SHM, Gooren, LJG et al. (2001) Effects of cross-sex hormone treatment on emotionality in transsexuals. International Journal of Transgenderism 5(3): http://www.symposion.com/ijt/ijtvo05no03_02.htm	Excluded on population – adult study (age range 21 to 28 years)
Smith YLS., Van Goozen SHM, Kuiper AJ et al. (2005) Sex reassignment: Outcomes and predictors of treatment for adolescent and adult transsexuals. Psychological Medicine 35(1): 89–99	Excluded on population – results on adults only used to assess hormone treatment.
Sutherland N, Espinel W, Grotzke M et al. (2020) Unanswered Questions: Hereditary breast and gynecological cancer risk assessment in transgender adolescents and young adults. Journal of Genetic Counseling 29(4): 625–633	Excluded on study type – narrative review of 3 case reports.
van Velzen DM, Paldino A, Klaver M et al. (2019) Cardiometabolic Effects of Testosterone in Transmen and Estrogen Plus Cyproterone Acetate in Transwomen. The Journal of Clinical Endocrinology and Metabolism 104(6): 1937–1947	Excluded on population – adult study, participants not 18 years or less.
White Hughto JM and Reisner SL (2016) A Systematic Review of the Effects of Hormone Therapy on Psychological Functioning and Quality of Life in Transgender Individuals. Transgender Health 1(1): 21–31	Exclude on population – all included studies conducted in adult population.
Wiepjes CM, de Blok CJM, Staphorsius AS et al. (2020) Fracture Risk in Trans Women and Trans Men Using Long-Term Gender-Affirming Hormonal Treatment: A Nationwide Cohort Study. Journal of Bone and Mineral Research 35(1): 64–70	Excluded on population – adult study, all participants started gender-affirming hormones after 18 years.
Wierckx K, Mueller S, Weyers S et al. (2012) Long-term evaluation of cross-sex hormone treatment in	Excluded on population – adult study, participants not 18 years or less.

Study reference	Reason for exclusion
transsexual persons. The Journal of Sexual Medicine 9(10): 2641–51	
Wierckx K, Van Caenegem E, Schreiner T et al. (2014) Cross-sex hormone therapy in trans persons is safe and effective at short-time follow-up: results from the European network for the investigation of gender incongruence. The journal of sexual medicine 11(8): 1999–2011	Excluded on population – adult study, participants not 18 years or less.
Wilson R, Jenkins C, Miller H et al. (2006) The effect of oestrogen on cytokine and antioxidant levels in male to female transsexual patients. Maturitas 55(1): 14–8	Excluded on population – adult study, participants not 18 years or less.
Witcomb GL, Bouman WP, Claes L et al. (2018) Levels of depression in transgender people and its predictors: Results of a large matched control study with transgender people accessing clinical services. Journal of Affective Disorders 235: 308–315	Excluded on population – although study included some younger people (age range 15 to 79), most participants were adults (mean age around 30.4 years) and the proportion who started treatment when 18 years or less is not reported. Outcomes not reported separately for people aged 18 years or less.

Appendix E Evidence tables

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Full citation Achille, C., Taggart, T., Eaton, N.R. et al. (2020) Longitudinal impact of gender-affirming endocrine intervention on the mental health and well-being of transgender youths: Preliminary results. International Journal of Pediatric Endocrinology 2020(1): 8 **Study location** Single centre, New York, United States **Study type** Prospective longitudinal study **Study aim** To assess the psychological wellbeing and quality of life in children and adolescents who have sought endocrine	Inclusion and exclusion not reported- it appears from the description in the publication that all people referred for gender dysphoria were invited to participate, and the vast majority agreed. Of the 95 treatment naïve people who entered the study, 50 people completed all follow-up questionnaires and were included in the analysis. No description of the 45 people without follow-up data reported. The study included 50 children, adolescents and young adults with gender dysphoria.	**Intervention** Endocrine interventions (the collective term used by authors for puberty suppression and gender-affirming hormones) were introduced as per Endocrine Society and the World Professional Association for	**Critical Outcomes** ***Impact on mental health*** Depression symptoms were assessed using the Center for Epidemiologic Studies Depression Scale (CESD-R). Statistically significant improvements in CESD-R score were observed from baseline (initial assessment; 21.4 points) to about 12 months follow-up (13.9 points; p<0.001). Regression analysis, controlling for reported medicines for mental health problems and engagement in counselling, found no statistically significant change from baseline in transfemales (p=0.27) and transmales (p=0.43). The Patient Health Questionnaire Modified for Teens (PHQ 9_Modified for Teens) was also used to assess depression symptoms. Depression scores improved from baseline (p< 0.001; absolute scores not reported numerically). Regression analysis, controlling for reported medicines for mental health problems and engagement in counselling, found no statistically significant change from baseline in transfemales (p=0.07) and transmales (p=0.67). Suicidal ideation measured using the additional questions from the PHQ 9_Modified for Teens, was presented in 10% (5/50) of	This study was appraised using the Newcastle-Ottawa tool for cohort studies. **Domain 1: Selection domain** 1. b) somewhat representative 2. c) no-non exposed cohort 3. a) secure record 4. b) no **Domain 2: Comparability** 1. c) no comparator **Domain 3: Outcome** 1. c) self-report 2. a) yes – 6 monthly assessment up to 12 months (preliminary results from an ongoing study) 3. c) Follow up rate less than 80% and no description of those lost **Overall quality is assessed as poor** Other comments: Although regression analysis results for some outcomes were controlled for use of medicines for mental health problems,

intervention to help with gender dysphoria. **Study dates** Study recruitment ran from December 2013 to December 2018; study is ongoing	17 transfemales and 33 transmales. Diagnostic criteria for gender dysphoria not reported. Mean age at baseline was 16.2 years (SD 2.2). Mean age at the start of gender-affirming hormone treatment not reported.	Transgender Health (WPATH) guidelines. Puberty suppression was: • GnRH agonist and/or anti-androgens (transfemales) • GnRH agonist or medroxyprogesterone (transmales) Average duration of GnRH analogue treatment not reported. Once eligible, gender-affirming hormones were offered, these were: • Oestradiol (transfemales) • Testosterone (transmales) Doses and route of administration not reported. After about 12-months treatment ('wave 3' in the study): • 24 people (48%) were on gender-affirming hormones alone • 12 people (24%) were on puberty suppression alone	participants at baseline and 6% (3/50) at about 12-month follow-up, no statistical analysis reported. The study also reported results by gender: In transfemales, 11.8% (2/17) had suicidal ideation at baseline compared with 5.9% (1/17) at 12-month follow-up (no statistically analysis reported) In transmales, 9.1% (3/33) had suicidal ideation at baseline compared with 6.1% (2/33) at 12-month follow-up (no statistically analysis reported) ***Impact on quality of life*** Quality of Life Enjoyment and Satisfaction Questionnaire (QLES-Q-SF) scores: there was no statistically significant change in score from baseline to about 12-months (p=0.085; absolute scores not reported numerically). Regression analysis, controlling for reported medicines for mental health problems and engagement in counselling, found not statistically significant change from baseline in transfemales (p=0.06) and transmales (p=0.08). *No other critical or important outcomes reported*	details of these is not reported. Other co-morbidities not reported. Source of funding: None

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
		• 11 people (22%) were on both gender-affirming hormones and puberty suppression • 3 people (6%) were on no endocrine intervention Results not represented separately for the sub-group of people who received gender-affirming hormones. Average duration of treatment with gender-affirming hormones not reported. **Comparison** No comparison group. Change overtime reported.		

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Full citation Allen, LR, Watson, LB, Egan, AM et al. (2019) Well-being and suicidality among transgender youth after gender-affirming hormones. Clinical Practice in Pediatric	The study included adolescents and young adults (age range 13-20 years) who received services for gender dysphoria in a clinic in the United States. Participants were required to have received gender-	39 participants received gender-affirming hormones only 8 participants received a GnRH analogue followed by gender-affirming hormones.	**Critical Outcomes** ***Impact on mental health*** The Ask Suicide-Screening Questions (ASQ) instrument was used to assess suicidality. Following an average of about 12 months treatment with gender-affirming hormones, adjusted mean ASQ score was statistically significantly lower (from 1.11 [standard error	This study was appraised using the Newcastle-Ottawa tool for cohort studies. **Domain 1: Selection domain** 1. b) somewhat representative 2. c) no-non exposed cohort

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Psychology 7(3): 302-311 **Study location** Single centre, Kansas City, United States **Study type** Retrospective longitudinal study **Study aim** To examine suicidality and general well-being following administration of gender-affirming hormones. **Study dates** Participants first presented to the clinic between 2015 and 2018.	affirming hormones for at least 3 months, and have pre-test and final assessment data points. No exclusion criteria reported. In total 47 adolescents and young adults with gender dysphoria were included: 14 transfemales (sex assigned at birth male) and 33 transmales (sex assigned at birth female). Diagnostic criteria for gender dysphoria not reported. Mean age at pre-test (before administration of gender-affirming hormones) was 16.59 years (range 13.73 to 19.04). Mean age at the start of treatment in the sub-group who received gender-affirming hormones-only was 16.72 years. Mean age at the start of treatment with gender-affirming hormones in people who previously	Mean duration of treatment in the gender-affirming hormones only subgroup was 366 days. Mean duration of gender-affirming hormone treatment in people who had previously received a GnRH analogue was not reported. Mean duration of treatment with a GnRH analogue was not reported. Participants were assessed at the start of treatment and at least 3 months after treatment.	(SE) 0.22] at baseline to 0.27 [SE 0.12] at final assessment; p<0.001). The authors also reported change in ASQ separately for transfemales (from 1.21 [SE 0.36] at baseline to 0.24 [SE 0.19] at final assessment) and transmales (from 1.01 [SE 0.36] at baseline to 0.29 [0.13] at final assessment). There was no statistically significant difference in change from baseline between transfemales and transmales (p=0.79) ***Impact on quality of life*** Assessed using the General Well-Being Scale (GWBS) of the Pediatric Quality of Life Inventory. Following an average of about 12 months treatment with gender-affirming hormones, adjusted mean GWBS score was statistically significantly higher (from 61.7 [SE 2.43] at baseline to 70.23 [2.15] at final assessment; p<0.002). The authors also reported change in GWBS of the Pediatric Quality of Life Inventory for transfemales (from 58.44 [SE 4.09] at baseline to 69.52 [SE 3.62] at final assessment) and transmales (from 64.95 [SE 2.66] at baseline to 70.94 [2.35] at final assessment). There was no statistically significant difference in change from baseline between transfemales and transmales (p=0.32) *No other critical or important outcomes reported*	3. a) secure record 4. b) no **Domain 2: Comparability** 2. c) no comparator **Domain 3: Outcome** 1. b) record linkage 2. a) yes – mean duration of treatment was 366 days 3. a) complete follow up - all subjects accounted for **Overall quality is assessed as poor** Other comments: None Source of funding: Not reported

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
	received a GnRH analogue was not reported.			

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Full citation Kaltiala, R., Heino, E., Tyolajarvi, M. et al. (2020) Adolescent development and psychosocial functioning after starting cross-sex hormones for gender dysphoria. Nordic Journal of Psychiatry 74(3): 213-219 **Study location** Single centre, Tampere, Finland **Study type** Retrospective chart review **Study aim** To evaluate the psychosocial functioning and need for mental health treatment during the gender identity diagnostic phase and after about	The study included adolescents who were referred to the gender identity service before they 18 years old, were diagnosed with gender dysphoria, received gender-affirming hormones and completed a follow-up of approximately 12 months after starting hormones. In total 52 adolescents were included, comprising of 11 transfemales and 41 transmales. Gender dysphoria was diagnosed according to International Classification of Disease 10 (ICD-10). The authors state that the corresponding diagnosis to 'gender dysphoria' in	Intervention referred to as 'hormonal sex reassignment treatment' – details of intervention not reported, although gender-affirming hormones were prescribed to all participants. It is not clear from the study whether additional interventions were prescribed. Medical records reviewed for the 'real-life phase' – the approximately 12 months follow-up period for this population in Finland.	**Critical Outcomes** ***Impact on mental health*** Of the 52 people who received gender-affirming hormones, 50% (26/52) needed mental health treatment before or during the assessment and 46% (24/51) needed mental health treatment during the 12-month 'real life' phase (no statistically significant difference). For specific symptoms / conditions: • depression: 54% (28/52) needed treatment before or during the assessment and 15% (8/52) needed treatment during the 12-month 'real life' phase (statistically significant reduction, p<0.001) • anxiety: 48% (25/52) needed treatment before or during the assessment and 15% (8/52) needed treatment during the 12-month 'real life' phase (statistically significant reduction, p<0.001) • suicidality/self-harm: 35% (18/52) needed treatment before or during the assessment and 4% (2/52) needed treatment during the 12-month 'real life' phase (statistically significant reduction, p<0.001) • conduct problems/antisocial: 14% (7/52) needed treatment before or during the	This study was appraised using the Newcastle-Ottawa tool for cohort studies. **Domain 1: Selection domain** 1. b) somewhat representative 2. c) no-non exposed cohort 3. a) secure record 4. b) no **Domain 2: Comparability** 1. c) cohorts are not comparable on the basis of the design or analysis controlled for confounders **Domain 3: Outcome** 1. b) record linkage 2. a) yes – 12 month follow-up 3. a) complete follow up - all subjects accounted for **Overall quality is assessed as poor**

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
a year on gender-affirming hormones. **Study dates** 2011 to 2017	the ICD-10 is 'transsexualism'. Mean age at diagnosis 18.1 years (range 15.2 to 19.9)		assessment and 6% (3/52) needed treatment during the 12-month 'real life' phase (no statistically significant difference, p= 0.18) • psychotic symptoms/psychosis: 2% (1/52) needed treatment before or during the assessment and 4% (2/52) needed treatment during the 12-month 'real life' phase (no statistically significant difference, p= 0.56) • substance abuse: 4% (2/52) needed treatment before or during the assessment and 2% (1/52) needed treatment during the 12-month 'real life' phase (no statistically significant difference, p= 0.56) • autism: 12% (6/52) needed treatment before or during the assessment and 6% (3/52) needed treatment during the 12-month 'real life' phase (no statistically significant difference, p= 0.30) • ADHD: 10% (5/52) needed treatment before or during the assessment and 2% (1/52) needed treatment during the 12-month 'real life' phase (no statistically significant difference, p= 0.09) • eating disorder: 2% (1/52) needed treatment before or during the assessment and 2% (1/52) needed treatment during the 12-month 'real life' phase (no statistically significant difference, p= 1.0). No details of actual treatment reported. **Important Outcomes** ***Psychosocial Impact*** Study reported on measures of functioning in different domains of adolescent development,	Other comments: None Source of funding: No source of funding reported

			reported over the approximately 12-month period after starting gender-affirming hormones (referred to as the 'real-life phase' in Finland) Significantly fewer participants were living with parent(s)/ guardians during the real-life phase (40%; 21/50) compared with during gender identity assessment (73%; 38/52; p=0.001)) There was a statistically significant reduction in the number of participants with normative peer contacts, from gender identity assessment (89%; 46/52) to the real-life phase (81%; 42/52; p<0.001). There was no significant difference in the number of participants who were progressing normally in school or work during gender identity assessment (64%; 33/52) compared with the real-life phase (60%; 31/52). There was no significant difference in the number of participants who have been dating or were in steady relationships during gender identity assessment (62%; 32/50) compared with the real-life phase (58%; 30/52). There was no significant difference in the number of participants who were able to deal with matters outside of the home in an age-appropriate manner during gender identity assessment (81% (42/52) compared with the real-life phase (81%; 42/52)	

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
			No other critical or important outcomes reported	

Study details	Population	Interventions	Study outcomes	Appraisal and Funding

Full citation
Khatchadourian K, Amed S, Metzger DL (2014) Clinical management of youth with gender dysphoria in Vancouver. The Journal of pediatrics 164(4): 906-11
 	
Study location
Single centre study, Vancouver, Canada
 	
Study type
Retrospective chart review
 	
Study aim
To describe the patient characteristics, clinical management, and response to treatment in a cohort of people seen in a single clinic.
 	
Study dates
1998 to 2011
	Inclusion criteria were at least Tanner stage 2 pubertal development, previous assessment by a mental health professional and a confirmed diagnosis of gender dysphoria (diagnostic criteria not specified). No exclusion criteria are specified.
	
	63 children, adolescents and young people with gender dysphoria who started gender-affirming hormones, out of 84 young people seen in the unit between 1998 and 2011.
	39 transfemales and 24 transmales.
	
	Diagnostic criteria for gender dysphoria not reported.
	
	Mean age at the start of gender-affirming hormone treatment was 17.4 years (SD 1.9).
		Intervention
		Transfemales: Oestrogen (oral micronized 17β-oestradiol)
		Transmales: Testosterone (injectable testosterone enanthate and/or cypionate)
		
		19 participants (30%) had previously received a GnRH analogue. The median time from start of GnRH analogue to start of gender-affirming hormones was 11.3 months (range 2.2 to 42.0). 11 participants continued GnRH analogues after starting gender-affirming hormones.
		
		Average duration of treatment with a GnRH analogue not reported
		
		Comparison
		No comparator
			Critical Outcomes
			
			No critical outcomes assessed.
			
			Important outcomes
			
			Safety
			Of the 63 participants who received gender-affirming hormones:
			• No participants permanently discontinued gender-affirming hormones
			• 3 participants (5%) temporarily discontinued treatment:
			  ○ 2 transmales due to concomitant mental health comorbidities
			  ○ 1 transmale due to androgenic alopecia.
			  ○ No transfemale stopped treatment.
			The authors report that all patients eventually restarted gender-affirming hormones, although they do not report how long treatment was
				This study was appraised using the Newcastle-Ottawa tool for cohort studies.
				
				Domain 1: Selection domain
				1. b) somewhat representative
				2. c) no-non exposed cohort
				3. a) secure record*
				4. b) no
				Domain 2: Comparability
				1. c) cohorts are not comparable on the basis of the design or analysis controlled for confounders
				Domain 3: Outcome
				1. b) record linkage
				2. b) no – although follow-up time is reported for patients with more than 1 clinic visit, duration of treatment with gender-affirming hormones is not reported
				3. c) incomplete - missing data
				
				Overall quality is assessed as poor

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
			stopped for, or what the effect of stopped treatment was. • No participants reported major complications • 12 participants (19%) had minor complications: ○ 7 transmales had severe acne (requiring isotretinoin) ○ 1 transmale had andogenic alopecia ○ 3 transmales had mild dyslipidaemia (levels not reported) ○ 1 transmale had significant mood swings ○ No transfemales had minor complications	Other comments: Mental health comorbidity was reported for all participants but not for the gender-affirming hormone cohort separately. Concomitant use of other medicines was not reported. Source of funding: No source of funding identified.

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Full citation Klaver, Maartje, de Mutsert, Renee, van der Loos, Maria A T C et al. (2020) Hormonal Treatment and Cardiovascular Risk Profile in Transgender Adolescents. Pediatrics 145(3) **Study location** Single centre, Amsterdam, Netherlands	Participants were included if i) they had started GnRH analogue treatment before 18 years, ii) if whole body dual-energy radiograph absorptiometry was performed at least once during treatment (4 months before or after the start of GnRH analogues or gender-affirming hormones, or	Transfemales: Oestrogen (17-β oestradiol [E2]) orally, starting with 5 mcg/kg body weight per day, which was increased every 6 months until the maintenance dose of 2 mg per day was reached. Transmales: mixed testosterone esters (Sustanon), 25 mg/m^2 body surface area every 2 weeks intramuscularly,	**Critical Outcomes** No critical outcomes assessed. **Important outcomes** ***Safety*** Safety outcomes reported separately for transfemales and transmales. **For transfemales**, from the start of gender-affirming hormone treatment to age 22 years: • Mean BMI statistically significantly increased (mean change +1.9, 95% CI 0.6 to 3.2, p<0.005; mean BMI at	This study was appraised using the Newcastle-Ottawa tool for cohort studies. **Domain 1: Selection domain** 1. b) somewhat representative 2. c) no-non exposed cohort 3. a) secure record* 4. b) no **Domain 2: Comparability** 1. c) cohorts are not comparable on the basis

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Study type Retrospective chart review **Study aim** To examine the effects of treatment on changes in cardiovascular risk factors, including BMI, blood pressure, insulin sensitivity, and lipid levels. **Study dates** 1998-2015	within 1.5 years before or after the 22nd birthday), iii) if they were likely to have had at least 1 medical consultation in young adulthood. The study included 192 young people with dysphoria who met the above inclusion criteria: 71 transfemales and 121 transmales. Gender dysphoria was diagnosed according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition criteria. Mean age at the start of gender-affirming hormones was 16.4 years (SD 1.1) for transfemales and 16.9 years (SD 0.9) for transmales.	increased every 6 months to maintenance dose of 250 mg every 3 to 4 weeks. When GnRH analogues were started after the age of 16 years a different hormone starter dose was used (1 mg oestrogen daily and 75 mg testosterone weekly). Median (IQR) duration of GnRH analogue (monotherapy) was 2.1 years (1.0 to 2.7) in transfemales and 1.0 (0.5 to 2.9) for transmales.	22 years= 23.2, 95% CI 21.6 to 24.8). At age 22 years, 9.9% of the cohort were obese, compared with 3.0% in reference cisgender population[1]. • Mean systolic blood pressure (SBP) did not significantly change (mean change -3 mmHg, 95% CI -8 to 2; mean SBP at 22 years= 117 mmHg, 95% CI 113 to 122) • Mean diastolic blood pressure (DBP) statistically significantly increased (mean change +6 mmHg, 95% CI 3 to 10, p<0.001; mean DBP at 22 years= 75 mmHg, 95% CI 72 to 78) • Mean glucose level did not significantly change (mean change +0.1 mmol/L, 95% CI -0.1 to 0.2; mean glucose level at 22 years= 5.0 mmol/L, 95% CI 4.8 to 5.1) • Mean insulin level did not significantly change (mean change +2.7 mU/L, 95% CI -1.7 to 7.1; mean insulin level at 22 years= 5.0 mU/L (4.8 to 5.1) • Insulin resistance (mean Homeostatic Model Assessment of Insulin Resistance [HOMA-IR]) did not significantly change (mean change +0.7, 95% CI -0.2 to 1.5; mean HOMA-IR at 22 years 2.9, 95% CI 1.9 to 3.9) • Mean total cholesterol did not significantly change (mean change +0.1 mmol/L, 95% CI -0.2 to 0.4; mean total cholesterol at 22 years 4.1 mmol/L, 95% CI 3.8 to 4.4) • Mean HDL cholesterol did not significantly change (mean change +0.0 mmol/L, 95% CI -0.1 to 0.2; mean HDL cholesterol at 22 years 1.6 mmol/L, 95% CI 1.4 to 1.7) • Mean LDL cholesterol did not significantly change (mean change +0.0 mmol/L, 95%	of the design or analysis controlled for confounders **Domain 3: Outcome** 1. b) record linkage 2. a) yes- follow-up from start of gender-affirming hormones to age 22 years, around 5 years 3. a) complete follow up - all subjects accounted for **Overall quality is assessed as poor** Other comments: None Source of funding: No external funding

			CI -0.3 to 0.2; mean LDL cholesterol at 22 years 2.0 mmol/L, 95% CI 1.8 to 2.3) • Mean triglycerides statistically significantly increased (mean change +0.2 mmol/L, 95% CI 0.0 to 0.5, p<0.05; triglyceride level at 22 years 1.1 mmol/L, 95% CI 0.9 to 1.4) **For transmales**, from the start of gender-affirming hormone treatment to age 22 years: • Mean BMI statistically significantly increased (mean change +1.4, 95% CI 0.8 to 2.0, p<0.005; mean BMI at 22 years= 23.9, 95% CI 23.0 to 24.7). At age 22 years, 6.6% of the cohort were obese, compared with 2.2% in reference cisgender population[1]. • Mean systolic blood pressure (SBP) statistically significantly increased (mean change +5 mmHg, 95% CI 1 to 9; mean SBP at 22 years= 126 mmHg, 95% CI 122 to 130) • Mean diastolic blood pressure (DBP) statistically significantly increased (mean change +6 mmHg, 95% CI 4 to 9, p<0.001; mean DBP at 22 years= 74 mmHg, 95% CI 72 to 77) • Mean glucose level did not significantly change (mean change 0.0 mmol/L, 95% CI -0.2 to 0.2; mean glucose level at 22 years= 4.8 mmol/L, 95% CI 4.7 to 5.0) • Mean insulin level statistically significantly decreased (mean change -2.1 mU/L, 95% CI -3.9 to -0.3, p<0.05; mean insulin level at 22 years= 8.6 mU/L (6.9 to 10.2) • Insulin resistance (mean Homeostatic Model Assessment of Insulin Resistance [HOMA-IR]) statistically significantly	

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
			decreased (mean change -0.5, 95% CI -1.0 to -0.1, p<0.05; mean HOMA-IR at 22 years 1.8, 95% CI 1.4 to 2.2) • Mean total cholesterol statistically significantly increased (mean change +0.4 mmol/L, 95% CI 0.2 to 0.6, p<0.001; mean total cholesterol at 22 years 4.6 mmol/L, 95% CI 4.3 to 4.8) • Mean HDL cholesterol statistically significantly decreased (mean change -0.3 mmol/L, 95% CI -0.4 to -0.2, p<0.001; mean HDL cholesterol at 22 years 1.3 mmol/L, 95% CI 1.2 to 1.3) • Mean LDL cholesterol statistically significantly increased (mean change +0.4 mmol/L, 95% CI 0.2 to 0.6, p<0.001; mean LDL cholesterol at 22 years 2.6 mmol/L, 95% CI 2.4 to 2.8) • Mean triglycerides statistically significantly increased (mean change +0.5 mmol/L, 95% CI 0.3 to 0.7, p<0.001; triglyceride level at 22 years 1.3 mmol/L, 95% CI 1.1 to 1.5)	

[1] Reference population taken from Fredriks et al. (2000)

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Full citation Klink D, Caris M, Heijboer A et al. (2015) Bone mass in young adulthood following gonadotropin-releasing hormone analog treatment and cross-sex hormone treatment in adolescents with gender dysphoria. The Journal of Clinical Endocrinology and Metabolism 100(2): e270-5 **Study location** Single centre, Amsterdam, Netherlands **Study type** Retrospective longitudinal study **Study aim** To assess peak bone mass in young adults with gender dysphoria who had received GnRH analogues and gender-affirming hormones during their pubertal years. **Study dates**	34 young people with gender dysphoria who received GnRH analogues, gender-affirming hormones and gonadectomy. The study included 15 transfemales and 19 transmales; mean age at start of gender-affirming hormones was 16.6 years (SD 1.4) and 16.4 years (SD 2.3) respectively. Participants were required to meet the DSM-IV-TR criteria for gender identity disorder of adolescence. Participants were included if they had undergone gonadectomy between June 1998 and August 2012, and they were at least 21 years old when they had the surgery. Bone mineral density data were also required at the start of GnRH analogue, gender-affirming hormones and at the age of 22 years. No concomitant treatments were reported.	**Intervention** Transfemales - oral 17-β oestradiol (incremental dosing) Transmales – IM testosterone (Sustanon 250 mg/ml; incremental dosing) Median duration of treatment with gender-affirming hormones for transfemales was 5.8 years (range 3.0 to 8.0) and for transmales was 5.4 years (range 2.8 to 7.8). The GnRH analogue was SC triptorelin 3.75 mg every 4 weeks. No details of gonadectomy reported. **Comparison** No comparison group. Comparison over time reported.	**Critical outcomes** No critical outcomes reported **Important outcomes** **Safety** ***Bone density: lumbar spine*** **Lumbar spine bone mineral apparent density (BMAD)** Change from starting gender-affirming hormones to age 22 years in transfemales-Mean (SD); g/m^3 • Start of gender-affirming hormones: 0.22 (0.02) • Age 22 years: 0.23 (0.03) • p=0.003 z-score (range) • Start of gender-affirming hormones: -0.90 (0.80) • Age 22 years: -0.78 (1.03) • No statistically significant difference Change from starting gender-affirming hormones to age 22 years in transmales-Mean (SD); g/m^3 • Start of gender-affirming hormones: 0.24 (0.02) • Age 22 years: 0.25 (0.28 • p=0.001 z-score (SD) • Start of gender-affirming hormones: -0.50 (0.81) • Age 22 years: -0.033 (0.95) • p=0.002	This study was appraised using the Newcastle-Ottawa tool for cohort studies. **Domain 1: Selection domain** 1. b) somewhat representative 2. c) no-non exposed cohort 3. a) secure record* 4. b) no **Domain 2: Comparability** 1. c) cohorts are not comparable on the basis of the design or analysis controlled for confounders **Domain 3: Outcome** 1. b) record linkage 2. a) yes – mean duration of gender-affirming hormone treatment was 5.8 and 5.4 years. 3. c) follow-up rate variable across timepoints and no description of those lost **Overall quality is assessed as poor** Other comments: Within person comparison. Small numbers of participants in each subgroup. No

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Gonadectomy took place between June 1998 and August 2012	At the start of gender-affirming hormone treatment, in the transfemale subgroup the median Tanner P was 4 (IQR 2) and the median Tanner G was 12 (IQR 11). In the transmale subgroup the median Tanner B was 5 (IQR 2) and the median Tanner P was 5 (IQR 0).		**Lumbar spine bone mineral density (BMD)** Change from starting gender-affirming hormones to age 22 years in transfemales-Mean (SD); g/m^2 • Start of gender-affirming hormones: 0.84 (0.11) • Age 22 years: 0.93 (0.10) • p<0.001 z-score (range) • Start of gender-affirming hormones: -1.01 (0.98) • Age 22 years: -1.36 (0.83) • No statistically significant difference Change from starting gender-affirming hormones to age 22 years in transmales-Mean (SD); g/m^2 • Start of gender-affirming hormones: 0.91 (0.10) • Age 22 years: 0.99 (0.13) • P<0.001 z-score (range) • Start of gender-affirming hormones: -0.72 (0.99) • Age 22 years: -0.33 (1.12) • No statistically significant difference ***Bone density: femoral region, nondominant side*** **Femoral region, nondominant side BMAD** Change from starting gender-affirming hormones to age 22 years in transfemales-Mean (SD); g/m^3 • Start of gender-affirming hormones: 0.26 (0.04) • Age 22 years: 0.28 (0.05)	concomitant treatments or comorbidities were reported. Source of funding: None disclosed

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
			• No statistically significant difference z-score (SD) • Start of gender-affirming hormones: -1.57 (1.74) • Age 22 years: Not reported • No statistical analysis reported Change from starting gender-affirming hormones to age 22 years in transmales- Mean (SD); g/m^3 • Start of gender-affirming hormones: 0.31 (0.04) • Age 22 years: 0.33 (0.05) • p=0.010 z-score (SD) • Start of gender-affirming hormones: -0.28 (0.74) • Age 22 years: Not reported • No statistical analysis reported **Femoral region, nondominant side BMD** Change from starting gender-affirming hormones to age 22 years in transfemales- Mean (SD); g/m^2 • Start of gender-affirming hormones: 0.87 (0.08) • Age 22 years: 0.94 (0.11) • P=0.009 z-score (SD) • Start of gender-affirming hormones: -0.95 (0.63) • Age 22 years: -0.69 (0.74) • No statistically significant difference Change from starting gender-affirming hormones to age 22 years in transmales- Mean (SD); g/m^2 • Start of gender-affirming hormones: 0.88 (0.09) • Age 22 years: 0.95 (0.10)	

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
			• P<0.001 z-score (SD) • Start of gender-affirming hormones: -0.35 (0.79) • Age 22 years: -0.35 (0.74) • p=0.006	

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Full citation Kuper, Laura E, Stewart, Sunita, Preston, Stephanie et al. (2020) Body Dissatisfaction and Mental Health Outcomes of Youth on Gender-Affirming Hormone Therapy. Pediatrics 145(4) **Study location** Single centre, Texas, USA **Study type** Prospective longitudinal study **Study aim** To: • explore how baseline body dissatisfaction, depression, and anxiety symptoms vary by gender,	148 children and adolescents with gender dysphoria, n=148, of whom: • 25 received puberty suppression only • 93 received gender-affirming hormone therapy only • 30 received both Results for treatments reported separately. Mean age at initial assessment was 15.4 years (range 9 to 18). Mean age at start of gender-affirming hormone therapy was 16.2 years (range 13.2 to 18.6). All participants met the Diagnostic and Statistical	Hormone therapy, guided by Endocrine Society Clinical Practice Guidelines Follow-up at least 18 months from initial assessment at the clinic. Mean duration of gender-affirming hormone therapy before follow-up was 10.9 months (range 1 to 18; SD 3.3)	**Critical Outcomes** ***Impact on mental health*** Mean depression score, assessed using the Quick Inventory of Depressive Symptoms (QIDS), self-reported was 9.6 (SD 5.0) at baseline and 7.4 (SD 4.5) at follow-up. The authors did not present statistical analysis for the sub-group of participants receiving gender-affirming hormones and it is unclear whether the change in score was statistically significant. Mean depression score, assessed using the QIDS, clinician-reported was 5.9 (SD 4.1) at baseline and 6.0 (SD 3.8) at follow-up. The authors did not present statistical analysis for the sub-group of participants receiving gender-affirming hormones and it is unclear whether the change in score was statistically significant. Mean anxiety score, assessed using the Screen for Child Anxiety Related Emotional Disorders (SCARED) questionnaire was 32.6 (SD 16.3) at baseline and 28.4 (SD 15.9) at	This study was appraised using the Newcastle-Ottawa tool for cohort studies. **Domain 1: Selection domain** 1. b) somewhat representative 2. c) no-non exposed cohort 3. a) secure record 4. b) no **Domain 2: Comparability** 1. c) cohorts are not comparable on the basis of the design or analysis controlled for confounders **Domain 3: Outcome** 1. d) assessors not blinded to treatment 2. a) yes – follow-up at least 18 months from initial assessment. Mean duration of gender-affirming hormone

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
age at initial assessment, and Tanner stage at first medical visit • examine how body dissatisfaction, depression, and anxiety symptoms change over the first year of gender-affirming hormone treatment • explore how any changes vary by affirmed gender, Tanner stage, age, type of treatment, months on gender-affirming hormone therapy, mental health treatment received, and whether chest surgery was also obtained (among transmales). **Study dates** Initial participant assessments took place between August 2014 and March 2018.	Manual of Mental Disorders, Fifth Edition criteria for gender dysphoria. Specific inclusion and exclusion criteria for the study are not reported. It would appear that all children and adolescents eligible for gender-affirming hormones were considered eligible for the study. The authors state that before initial assessment with a psychologist, psychiatrist, and/or clinical therapist, parents completed a phone intake survey. Around one-third of families did not follow-up after the phone intake.		follow-up. The authors did not present statistical analysis for the sub-group of participants receiving gender-affirming hormones and it is unclear whether the change in score was statistically significant. Mean panic score, assessed using specific questions from the SCARED questionnaire was 8.1 (SD 6.3) at baseline and 7.1 (SD 6.5) at follow-up. The authors did not present statistical analysis for the sub-group of participants receiving gender-affirming hormones and it is unclear whether the change in score was statistically significant. Mean generalised anxiety score, assessed using specific questions from the SCARED questionnaire was 10.0 (SD 5.1) at baseline and 8.8 (SD 6.5) at follow-up. The authors did not present statistical analysis for the sub-group of participants receiving gender-affirming hormones and it is unclear whether the change in score was statistically significant. Mean social anxiety score, assessed using specific questions from the SCARED questionnaire was 8.5 (SD 4.1) at baseline and 7.7 (SD 4.2) at follow-up. The authors did not present statistical analysis for the sub-group of participants receiving gender-affirming hormones and it is unclear whether the change in score was statistically significant. Mean separation anxiety score, assessed using specific questions from the SCARED	treatment was 10.9 months. 3. c) patient numbers vary by outcome with no explanation **Overall quality is assessed as poor** Other comments: None Source of funding: Supported by Children's Health. The Research Electronic Data Capture database was funded by the Clinical and Translational Science Awards program

			questionnaire was 3.5 (SD 3.0) at baseline and 3.1 (SD 2.5) at follow-up. The authors did not present statistical analysis for the sub-group of participants receiving gender-affirming hormones and it is unclear whether the change in score was statistically significant. Mean school avoidance score, assessed using specific questions from the SCARED questionnaire was 2.6 (SD 2.1) at baseline and 2.0 (SD 2.0) at follow-up. The authors did not present statistical analysis for the sub-group of participants receiving gender-affirming hormones and it is unclear whether the change in score was statistically significant. The authors also reported results separately for transfemales and transmales: **Transfemales** No statistical analyses were reported for this sub-group and it is unclear whether any changes in score were statistically significant. • Mean depression symptoms, assessed using the QIDS, self-reported was 7.5 (SD 4.9) at baseline and 6.6 (SD 4.4) at follow-up. • Mean depression symptoms, assessed using the QIDS, clinician-reported was 4.2 (SD 3.2) at baseline and 5.4 (SD 3.4) at follow-up. • Mean anxiety symptoms, assessed using the SCARED questionnaire was 26.4 (SD 14.2) at baseline and 24.3 (SD 15.4) at follow-up.	

			• Mean panic symptoms, assessed using specific questions from the SCARED questionnaire was 5.7 (SD 4.9) at baseline and 5.1 (SD 4.9) at follow-up. • Mean generalised anxiety symptoms, assessed using specific questions from the SCARED questionnaire was 8.6 (SD 5.1) at baseline and 8.0 (SD 5.1) at follow-up. • Mean social anxiety symptoms, assessed using specific questions from the SCARED questionnaire was 7.1 (SD 3.9) at baseline and 6.8 (SD 4.4) at follow-up. • Mean separation anxiety symptoms, assessed using specific questions from the SCARED questionnaire was 3.4 (SD 3.3) at baseline and 2.7 (SD 2.3) at follow-up. • Mean school avoidance symptoms, assessed using specific questions from the SCARED questionnaire was 1.8 (SD 1.7) at baseline and 1.9 (SD 2.1) at follow-up. **Transmales** No statistical analyses were reported for this sub-group and it is unclear whether any changes in score were statistically significant. • Mean depression symptoms, assessed using the QIDS, self-reported was 10.4 (SD 5.0) at baseline and 7.5 (SD 4.5) at follow-up. • Mean depression symptoms, assessed using the QIDS, clinician-reported was 6.7 (SD 4.4) at baseline and 6.2 (SD 4.1) at follow-up. • Mean anxiety symptoms, assessed using the SCARED questionnaire was 35.4 (SD	

			16.5) at baseline and 29.8 (SD 15.5) at follow-up. • Mean panic symptoms, assessed using specific questions from the SCARED questionnaire was 9.3 (SD 6.5) at baseline and 7.9 (SD 6.5) at follow-up. • Mean generalised anxiety symptoms, assessed using specific questions from the SCARED questionnaire was 10.4 (SD 5.0) at baseline and 9.0 (SD 5.1) at follow-up. • Mean social anxiety symptoms, assessed using specific questions from the SCARED questionnaire was 8.5 (SD 4.0) at baseline and 7.8 (SD 4.1) at follow-up. • Mean separation anxiety symptoms, assessed using specific questions from the SCARED questionnaire was 4.2 (SD 3.4) at baseline and 3.4 (SD 2.6) at follow-up. • Mean school avoidance symptoms, assessed using specific questions from the SCARED questionnaire was 2.6 (SD 2.1) at baseline and 2.0 (SD 2.0) at follow-up. No difference in impact on mental health found by Tanner age. Numerical results, statistical analysis and information on specific outcomes not reported. It is unclear from the paper whether Tanner age is at initial assessment, start of GnRH analogues, start of gender-affirming hormones, or another timepoint. **Important Outcomes** ***Impact on body image***	

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
			Mean Body Image Scale (BIS) score was 70.7 (SD 15.2) at baseline and 51.4 (SD 18.3) at follow-up. The authors do not present statistical analysis for this population and it is unclear whether the change in score was statistically significant. The authors also reported body image results separately for transfemales and transmales. No statistical analyses were reported for this sub-groups and it is unclear whether changes in score were statistically significant. • In transfemales, BIS score was 67.5 (SD 19.5) at baseline and 49.0 (SD 21.6) at follow-up. • In transmales, BIS score was 71.1 (SD 13.4) at baseline and 52.9 (SD 16.8) at follow-up. No difference in body image score found by Tanner age. Numerical results, statistical analysis and information on specific outcomes not reported. It is unclear from the paper whether Tanner age is at initial assessment, start of GnRH analogues, start of gender-affirming hormones, or another timepoint. *No other critical or important outcomes reported*	

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Study dates Lopez de Lara, D., Perez Rodriguez, O., Cuellar Flores, I. et al. (2020) Psychosocial assessment in transgender adolescents. Anales de Pediatria **Study location** Single centre in Madrid, Spain **Study type** Prospective analytical study **Study aim** To assess the psychosocial status of patients seeking care in the paediatric endocrinology clinic for gender dysphoria, and the impact on psychosocial status of gender-affirming hormone therapy at 12 months of treatment **Study dates** Not reported	23 adolescents with gender dysphoria; 16 transmale and 7 transfemale. Participants were required to be at a stage of pubertal development of Tanner 2 or higher. People with mental health comorbidity that could affect the experience of gender dysphoria were excluded. Mean age at baseline was 16 years (range 14 to 18). 30 cisgender controls, matched for age, ethnicity, and socioeconomic status	Gender-affirming hormones- • Oral oestradiol • Intramuscular testosterone Participants had previously received gonadotropin-releasing hormone (GnRH) analogues in the intermediate pubertal stages (Tanner 2---3).	**Critical Outcomes** ***Impact on gender dysphoria*** Following gender-affirming hormones for 12 months, mean (±SD) Utrecht Gender Dysphoria Scale (UGDS) score statistically significantly improved, from 57.1 (±4.1) at baseline to 14.7 (±3.2; p<0.001) ***Impact on mental health*** Mean depression score statistically significantly improved following treatment with gender-affirming hormones. Mean Beck Depression Inventory II (BDI-II) score (±SD) reduced from 19.3 points (±5.5) at baseline to 9.7 points (±3.9) at 12 months (p<0.001). Mean anxiety scores statistically significantly improved following treatment with gender-affirming hormones. Mean (±SD) State-Trait Anxiety Inventory (STAI) State subscale score improved from 33.3 points (±9.1) at baseline to 16.8 points (±8.1) at 12 months (p<0.001). Mean (±SD) State-Trait Anxiety Inventory (STAI) Trait subscale score improved from 33.0 points (±7.2) at baseline to 18.5 points (±8.4) at 12 months (p<0.001). **Important Outcomes** ***Psychosocial Impact*** There was not change in family functioning, measured using the Family APGAR test, from baseline (17.9 points) to 1 year after starting	This study was appraised using the Newcastle-Ottawa tool for cohort studies. **Domain 1: Selection domain** 1. b) somewhat representative 2. Not applicable – although a control group is reported on, people in this group did not have gender dysphoria. 3. a) secure record* 4. b) no **Domain 2: Comparability** 1. Not applicable – although a control group is reported on, people in this group did not have gender dysphoria. **Domain 3: Outcome** 1. d) assessors not blinded to treatment 2. a) yes – 12 months treatment with gender-affirming hormones 3. a) complete follow up - all subjects accounted for **Overall quality is assessed as poor**

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
			gender-affirming hormones (18.0 points; no statistical analysis reported). Results from the Strengths and Difficulties Questionnaire, Spanish Version (SDQ-Cas) showed statistically significant improvements from baseline (14.7 points; SD±3.3) to 12 months after gender-affirming hormones (10.3 points; SD±2.9; p<0.001) *No other critical or important outcomes reported*	Other comments: None Source of funding: Not reported

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Full citation Stoffers, Iris E; de Vries, Martine C; Hannema, Sabine E (2019) Physical changes, laboratory parameters, and bone mineral density during testosterone treatment in adolescents with gender dysphoria. The journal of sexual medicine 16(9): 1459-1468 **Study location** Single centre, Leiden, Netherlands **Study type** Retrospective chart review **Study aim** To report changes in height, BMI, blood pressure, laboratory parameters and bone density. **Study dates** November 2010 to August 2018	62 transmales with gender dysphoria. participants were required to have been receiving testosterone therapy for at least 6 months. Further inclusion or exclusion criteria not reported. Gender dysphoria was diagnosed according to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition criteria. .	Testosterone intramuscular injection (Sustanon 250 mg). Dose escalated every 6 months up to the standard adult dose of 125 mg every 2 weeks or 250 mg every 3-4 weeks. A more rapid dose escalation was using in patients who started GnRH analogue treatment at 16 years or older. Median age at start of testosterone treatment was 17.2 years (range 14.9 to 18.4) Median duration of testosterone treatment was 12 months (range 5 to 33) Median duration of GnRH analogue treatment was 8 months (range 3 to 39)	**Critical Outcomes** No critical outcomes assessed. **Important outcomes** ***Safety*** ***Bone mineral density (BMD): lumbar spine*** There was no statistically significant difference in lumber spine bone mineral density (BMD) from start of testosterone treatment to any timepoint, up to 24 months follow-up. Mean (±SD), g/cm^2: • Start of testosterone: 0.90 (±0.11) • 6 months: 0.94 (±0.10) • 12 months: 0.95 (±0.09) • 24 months: 0.95 (±0.11) z-score (±SD): • Start of testosterone: -0.81 (±1.02) • 6 months: -0.67 (±0.95) • 12 months: -0.66 (±0.81) • 24 months: -0.74 (±1.17) ***Bone mineral density (BMD): femoral neck (hip)*** There was no statistically significant difference in right or left femoral neck (hip) bone mineral density (BMD) from start of	This study was appraised using the Newcastle-Ottawa tool for cohort studies. **Domain 1: Selection domain** 1. b) somewhat representative 2. c) no-non exposed cohort 3. a) secure record* 4. b) no **Domain 2: Comparability** 1. c) cohorts are not comparable on the basis of the design or analysis controlled for confounders **Domain 3: Outcome** 1. b) record linkage 2. a) yes – mean duration of gender-affirming hormone treatment was 5.8 and 5.4 years. 3. a) complete follow up - all subjects accounted for **Overall quality is assessed as poor** Other comments: None Source of funding: None

			testosterone treatment to any timepoint, up to 24 months follow-up.
			Right
			Mean (±SD), g/cm^2:
			• Start of testosterone: 0.77 (±0.08)
			• 6 months: 0.84 (±0.11)
			• 12 months: 0.82 (±0.08)
			• 24 months: 0.85 (±0.11)
			z-score (±SD):
			• Start of testosterone: -0.97 (0.79)
			• 6 months: -0.54 (±0.96)
			• 12 months: -0.80 (±0.69)
			• 24 months: -0.31 (±0.84)
			Left
			Mean (±SD), g/cm^2:
			• Start of testosterone: 0.76 (±0.09)
			• 6 months: 0.83 (±0.12)
			• 12 months: 0.81 (±0.08)
			• 24 months: 0.86 (±0.09)
			z-score (±SD):
			• Start of testosterone: -1.07 (0.85)
			• 6 months: -0.62 (±1.12)
			• 12 months: -0.93 (±0.63)
			• 24 months: -0.20 (±0.70)
			
			Other safety-related outcomes
			• Alkaline phosphatase: statistically significant increases observed from start of testosterone treatment to 6 months and 12 months ($p<0.001$), although difference at 24 months was not statistically significant. Median (IQR), U/L
			  ○ Start of testosterone: 102 (78 to 136)
			  ○ 6 months: 115 (102 to 147)
			  ○ 12 months: 112 (88 to 143)
			  ○ 24 months: 81 (range 69 to 98)
			• Creatinine: statistically significant increases observed from start of	

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
			testosterone treatment to 6, 12 and 24 months (p<0.001). Mean (±SD), umol/L ○ Start of testosterone: 62 (±7) ○ 6 months: 70 (±9) ○ 12 months: 74 (±10) ○ 24 months: 81 (±10) There was no statistically significant change from start of testosterone treatment in: • HbA1c • Aspartate aminotransferase (AST) • Alanine aminotransferase (ALT) • Gamma-glutamyl transferase • Urea Numerical results, follow-up duration and further details of statistical analysis not reported.	

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
Full citation Vlot MC, Klink DT, den Heijer M et al. (2017) Effect of pubertal suppression and cross-sex hormone therapy on bone turnover markers and bone mineral apparent density (BMAD) in transgender adolescents. Bone 95: 11-19 **Study location** Single centre, Amsterdam, Netherlands **Study type** Retrospective chart review **Study aim** To investigate the impact of GnRH analogues and gender-affirming hormones on bone mineral apparent density (BMAD) in transgender adolescents. The study also report on levels of bone turnover markers, although the authors concluded that the	70 adolescents with gender dysphoria (42 transmales and 28 transfemales). Median age (range) at the start of gender-affirming hormones was 16.3 years (15.9 to 19.5) for transmales and 16.0 years (14.0 to 18.9) for transfemales. Participants were included if they had a diagnosis of gender dysphoria according to DSM-IV-TR criteria who received GnRH analogues and then gender-affirming hormones. No concomitant treatments were reported. The study categorised participants into a young and old pubertal group, based on their bone age. The young transmales had a bone age of <14 years and the old transmales had a bone age of ≥14 years. The young transfemales	Transfemales: Oestradiol oral Dose escalated every 6 months until standard adult dose of 2 mg daily was reached Transmales: Testosterone intramuscular injection (Sustanon 250 mg). Dose escalated every 6 months up to the standard adult dose of 250 mg every 4 weeks or 250 mg every 3-4 weeks. All participants previously received a GnRH analogue (triptorelin 3.75 mg subcutaneously every 4 weeks) Median duration of GnRH analogue therapy not reported.	**Critical outcomes** No critical outcomes reported **Important outcomes** ***Bone density: lumbar spine*** **Lumbar spine bone mineral apparent density (BMAD)** Transfemales (bone age <15 years), change from starting gender-affirming hormones to 24 months follow-up. Median (range), g/m^3 • Start of gender-affirming hormones (C0): 0.20 (0.18 to 0.24) • 24-month follow-up (C24): 0.22 (0.19 to 0.27) • Statistically significant increase (p≤0.01) z-score (range) • Start of gender-affirming hormones (C0): -1.52 (-2.36 to 0.42) • 24-month follow-up (C24): • Statistically significant increase (p≤0.05) Transfemales (bone age ≥15 years), change from starting gender-affirming hormones to 24 months follow-up. Median (range), g/m^3 • Start of gender-affirming hormones: 0.22 (0.19 to 0.24) • 24-months: 0.23 (0.21 to 0.26) • Statistically significant increase (p≤0.05) z-score (range) • Start of gender-affirming hormones: -1.15 (-2.21 to 0.08) • 24-months: -0.66 (-1.66 to 0.54)	This study was appraised using the Newcastle-Ottawa tool for cohort studies. **Domain 1: Selection domain** 1. b) somewhat representative 2. c) no-non exposed cohort 3. a) secure record* 4. b) no **Domain 2: Comparability** 1. c) cohorts are not comparable on the basis of the design or analysis controlled for confounders **Domain 3: Outcome** 1. b) record linkage 2. a) yes- 24 month follow-up 3. a) complete follow up - all subjects accounted for **Overall quality is assessed as poor.** Other comments: None Source of funding: grant from Abbott diagnostics

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
added value of these seems to be limited. **Study dates** Participants started gender-affirming therapy between 2001 and 2011	group had a bone age of <15 years and the old transfemales group ≥15 years.		Statistically significant increase (p≤0.05) Transmales (bone age <14 years), change from starting gender-affirming hormones to 24 months follow-up. Median (range), g/m^3 • Start of gender-affirming hormones: 0.23 (0.19 to 0.28) • 24-months: 0.25 (0.22 to 0.28) • Statistically significant increase (p≤0.01) z-score (range) • Start of gender-affirming hormones: -0.84 (-2.2 to 0.87) • 24-months: -0.15 (-1.38 to 0.94) Statistically significant increase (p≤0.01) Transmales (bone age ≥14 years), change from starting gender-affirming hormones to 24 months follow-up. Median (range), g/m^3 • Start of gender-affirming hormones: 0.24 (0.20 to 0.28) • 24-months: 0.25 (0.21 to 0.30) • Statistically significant increase (p≤0.01) z-score (range) • Start of gender-affirming hormones: -0.29 (-2.28 to 0.90) • 24-months: -0.06 (-1.75 to 1.61) Statistically significant increase (p≤0.01) ***Bone density: femoral neck*** **Femoral neck BMAD** Transfemales (bone age <15 years), change from starting gender-affirming hormones to 24 months follow-up.	

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
			Median (range), g/m^3 • Start of gender-affirming hormones: 0.27 (0.20 to 0.33) • 24-months: 0.27 (0.20 to 0.36) • No statistically significant change z-score (range) • Start of gender-affirming hormones: -1.32 (-3.39 to 0.21) • 24-months: -1.30 (-3.51 to 0.92) • No statistically significant change Transfemales (bone age ≥15 years), change from starting gender-affirming hormones to 24 months follow-up. Median (range), g/m^3 • Start of gender-affirming hormones: 0.30 (0.26 to 0.34) • 24-months: 0.29 (0.24 to 0.38) • No statistically significant change z-score (range) • Start of gender-affirming hormones: -0.36 (-1.50 to 0.46) • 24-months: -0.56 (-2.17 to 1.29) • No statistically significant change Transmales (bone age <14 years), change from starting gender-affirming hormones to 24 months follow-up. Median (range), g/m^3 • Start of gender-affirming hormones: 0.30 (0.22 to 0.35) • 24-months: 0.33 (0.23 to 0.37) • Statistically significant increase (p≤0.01) z-score (range) • Start of gender-affirming hormones: -0.37 (-2.28 to 0.47) • 24-months: -0.37 (-2.03 to 0.85)	

Study details	Population	Interventions	Study outcomes	Appraisal and Funding
			• Statistically significant increase (p≤0.01) Transmales (bone age ≥14 years), change from starting gender-affirming hormones to 24 months follow-up. • Start of gender-affirming hormones: 0.30 (0.23 to 0.41) • 24-months: 0.32 (0.23 to 0.41) • Statistically significant increase (p≤0.01) z-score (range) • Start of gender-affirming hormones: -0.27 ((-1.91 to 1.29) • 24-months: 0.02 (-2.1 to 1.35) • Statistically significant increase (p≤0.05)	

Appendix F Quality appraisal checklists

Newcastle-Ottawa Quality Assessment Form for Cohort Studies

Note: A study can be given a maximum of one star for each numbered item within the Selection and Outcome categories. A maximum of two stars can be given for Comparability.

Selection

1) Representativeness of the exposed cohort
    a) Truly representative (one star)
    b) Somewhat representative (one star)
    c) Selected group
    d) No description of the derivation of the cohort
2) Selection of the non-exposed cohort
    a) Drawn from the same community as the exposed cohort (one star)
    b) Drawn from a different source
    c) No description of the derivation of the non exposed cohort
3) Ascertainment of exposure
    a) Secure record (e.g., surgical record) (one star)
    b) Structured interview (one star)
    c) Written self report
    d) No description
    e) Other
4) Demonstration that outcome of interest was not present at start of study
    a) Yes (one star)
    b) No

Comparability

1) Comparability of cohorts on the basis of the design or analysis controlled for confounders
    a) The study controls for age, sex and marital status (one star)
    b) Study controls for other factors (list) _____ (one star)
    c) Cohorts are not comparable on the basis of the design or analysis controlled for confounders

Outcome

1) Assessment of outcome
    a) Independent blind assessment (one star)
    b) Record linkage (one star)
    c) Self report
    d) No description
    e) Other
2) Was follow-up long enough for outcomes to occur
    a) Yes (one star)
    b) No
    Indicate the median duration of follow-up and a brief rationale for the assessment above:_____
3) Adequacy of follow-up of cohorts
    a) Complete follow up- all subject accounted for (one star)

b) Subjects lost to follow up unlikely to introduce bias- number lost less than or equal to 20% or description of those lost suggested no different from those followed. (one star)
c) Follow up rate less than 80% and no description of those lost
d) No statement

Thresholds for converting the Newcastle-Ottawa scales to AHRQ standards (good, fair, and poor):

Good quality: 3 or 4 stars in selection domain AND 1 or 2 stars in comparability domain AND 2 or 3 stars in outcome/exposure domain

Fair quality: 2 stars in selection domain AND 1 or 2 stars in comparability domain AND 2 or 3 stars in outcome/exposure domain

Poor quality: 0 or 1 star in selection domain OR 0 stars in comparability domain OR 0 or 1 stars in outcome/exposure domain

Appendix G Grade profiles

Table 2: Question 1: For children and adolescents with gender dysphoria, what is the clinical effectiveness of treatment with gender-affirming hormones compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention? - Gender dysphoria

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Impact on gender dysphoria (1 uncontrolled, prospective observational study)									
Change from baseline in mean gender dysphoria score, measured using the UGDS (duration of treatment 12 months). Higher scores indicate greater gender dysphoria.									
1 cohort study Lopez de Lara et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=23	None	T0 (baseline) = 57.1 (SD 4.1) T1 (12 months) = 14.7 (SD 3.2) Statistically significant improvement, p<0.001	Critical	VERY LOW

Abbreviations: p: p-value; SD: standard deviation; UGDS: Utrecht Gender Dysphoria Scale

1 Downgraded 1 level - the cohort study by Lopez de Lara et al. 2020 was assessed at high risk of bias (poor quality overall; lack of blinding and no control group)

Table 3: Question 1: For children and adolescents with gender dysphoria, what is the clinical effectiveness of treatment with gender-affirming hormones compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention? – Mental health

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Impact on mental health (3 uncontrolled, prospective observational studies and 2 uncontrolled, retrospective observational studies)									
Change from baseline in mean depression score, measured using the BDI-II (duration of treatment 12 months). Higher scores indicate more severe depression.									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
1 cohort study Lopez de Lara et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=23	None	T0 (baseline) = 19.3 (SD 5.5) T1 (12 months) = 9.7 (SD 3.9) Statistically significant improvement, p<0.001	Critical	VERY LOW
Change from baseline in mean depression score, measured using the CESD-R (approximately 12-month follow-up). Higher scores indicate more severe depression.									
1 cohort study Achille et al. 2020	Serious limitations[2]	Serious indirectness[3]	No serious inconsistency	Not calculable	N=50	None	Wave 1 (baseline) = 21.4 Wave 3 (approx. 12 months) = 13.9 Statistically significant improvement (p<0.001)	Critical	VERY LOW
Change from baseline in depression score, measured using the Patient Health Questionnaire Modified for Teens (PHQ 9_Modified for Teens) (approximately 12-month follow-up). Higher scores indicate more severe depression.									
1 cohort study Achille et al. 2020	Serious limitations[2]	Serious indirectness[3]	No serious inconsistency	Not calculable	N=50	None	Statistically significant reductions in mean score, p<0.001 Results presented diagrammatically, numerical results for mean score not reported	Critical	VERY LOW
Change from baseline in depression symptoms, measured using the Quick Inventory of Depressive Symptoms (QIDS), self-reported (mean duration of gender-affirming hormone treatment 10.9 months). Higher scores indicate more severe depression.									
1 cohort study Kuper et al. 2020	Serious limitations[4]	No serious indirectness	No serious inconsistency	Not calculable	N=105	None	Baseline = 9.6 (SD 5.0) Follow-up = 7.4 (SD 4.5) No statistical analysis reported for the sub-group of participants receiving gender-affirming hormones	Critical	VERY LOW
Change from baseline in depression symptoms, measured using the Quick Inventory of Depressive Symptoms (QIDS), clinician-reported (mean duration of gender-affirming hormone treatment 10.9 months). Higher scores indicate more severe depression.									
1 cohort study	Serious limitations[4]	No serious indirectness	No serious inconsistency	Not calculable	N=106	None	Baseline = 5.9 (SD 4.1) Follow-up = 6.0 (SD 3.8)	Critical	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Kuper et al. 2020							No statistical analysis reported for the sub-group of participants who received gender-affirming hormones		
Need for treatment due to depression, during and before gender identity assessment, and during real life phase (approximately 12 months follow-up)									
1 cohort study Kaltiala et al. 2020	Serious limitations[7]	No serious indirectness	No serious inconsistency	Not calculable	N=52	None	During and before gender identity assessment 54% (28/52) During real life phase 15% (8/52) Statistically significant reduction (p<0.001)	Critical	VERY LOW
Change from baseline in anxiety score, measured using the STAI-State subscale (duration of treatment 12 months). Higher scores indicate more severe anxiety.									
1 cohort study Lopez de Lara et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=23	None	T0 (baseline) = 33.3 (SD 9.1) T1 (12 months) = 16.8 (SD 8.1) Statistically significant improvement, p<0.001	Critical	VERY LOW
Change from baseline in anxiety score, measured using the STAI-Trait subscale (duration of treatment 12 months). Higher scores indicate more severe anxiety.									
1 cohort study Lopez de Lara et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=23	None	T0 (baseline) = 33.0 (SD 7.2) T1 (12 months) = 18.5 (SD 8.4) Statistically significant improvement, p<0.001	Critical	VERY LOW
Change from baseline in anxiety symptoms, measured using the SCARED questionnaire (mean duration of gender-affirming hormone treatment 10.9 months). Higher scores indicate more severe anxiety.									
1 cohort study Kuper et al. 2020	Serious limitations[4]	No serious indirectness	No serious inconsistency	Not calculable	N=80	None	Baseline = 32.6 (SD 16.3) Follow-up = 28.4 (SD 15.9) No statistical analysis reported for the sub-group of participants	Critical	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
							who received gender-affirming hormones		
Change from baseline in panic symptoms, measured using specific questions from the SCARED questionnaire (mean duration of gender-affirming hormone treatment 10.9 months). Higher scores indicate more severe symptoms.									
1 cohort study Kuper et al. 2020	Serious limitations[4]	No serious indirectness	No serious inconsistency	Not calculable	N=82	None	Baseline = 8.1 (SD 6.3) Follow-up = 7.1 (SD 6.5) No statistical analysis reported for the sub-group of participants who received gender-affirming hormones	Critical	VERY LOW
Change from baseline in generalised anxiety symptoms, measured using specific questions from the SCARED questionnaire (mean duration of gender-affirming hormone treatment was 10.9 months). Higher scores indicate more severe symptoms.									
1 cohort study Kuper et al. 2020	Serious limitations[4]	No serious indirectness	No serious inconsistency	Not calculable	N=82	None	Baseline = 10.0 (SD 5.1) Follow-up = 8.8 (SD 5.0) No statistical analysis reported for the sub-group of participants who received gender-affirming hormones	Critical	VERY LOW
Change from baseline in social anxiety symptoms, measured using specific questions from the SCARED questionnaire (mean duration of gender-affirming hormone treatment was 10.9 months). Higher scores indicate more severe symptoms.									
1 cohort study Kuper et al. 2020	Serious limitations[4]	No serious indirectness	No serious inconsistency	Not calculable	N=82	None	Baseline = 8.5 (SD 4.1) Follow-up = 7.7 (SD 4.2) No statistical analysis reported for the sub-group of participants who received gender-affirming hormones	Critical	VERY LOW
Change from baseline in separation anxiety symptoms, measured using specific questions from the SCARED questionnaire (mean duration of gender-affirming hormone treatment was 10.9 months). Higher scores indicate more severe symptoms.									
1 cohort study Kuper et al. 2020	Serious limitations[4]	No serious indirectness	No serious inconsistency	Not calculable	N=81	None	Baseline = 3.5 (SD 3.0) Follow-up = 3.1 (SD 2.5) No statistical analysis reported for the sub-group of participants	Critical	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
							who received gender-affirming hormones		
Change from baseline in school avoidance, measured using specific questions from the SCARED questionnaire (mean duration of gender-affirming hormone treatment was 10.9 months). Higher scores indicate more severe symptoms.									
1 cohort study Kuper et al. 2020	Serious limitations[4]	No serious indirectness	No serious inconsistency	Not calculable	N=80	None	Baseline = 2.6 (SD 2.1) Follow-up = 2.0 (SD 2.0) No statistical analysis reported for the sub-group of participants who received gender-affirming hormones	Critical	VERY LOW
Need for treatment due to anxiety, during and before gender identity assessment, and during real life phase (approximately 12 months follow-up)									
1 cohort study Kaltiala et al. 2020	Serious limitations[7]	No serious indirectness	No serious inconsistency	Not calculable	N=52	None	During and before gender identity assessment 48% (25/52) During real life phase 15% (8/52) Statistically significant reduction (p<0.001)	Critical	VERY LOW
Change from baseline in adjusted mean suicidality score, measured using the ASQ instrument (mean treatment duration 349 days). Higher scores indicate a greater degree of suicidality.									
1 cohort study Allen et al. 2019	Serious limitations[5]	No serious indirectness	No serious inconsistency	Not calculable	N=39	None	T0 (baseline) = 1.11 (SE 0.22) T1 (final assessment) = 0.27 (SE 0.12) Statistically significant improvement in score from T0 to T1, p<0.001	Critical	VERY LOW
Change from baseline in percentage of participants with suicidal ideation, measured using the additional questions from the PHQ 9_Modified for Teens (approximately 12-month follow-up)									
1 cohort study Achille et al. 2020	Serious limitations[2]	Serious indirectness[3]	No serious inconsistency	Not calculable	N=50	None	Wave 1 (baseline) = 10% (5/50) Wave 3 (approx. 12 months) = 6% (3/50)	Critical	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
							No statistical analysis reported		
Change from baseline in suicidal ideation (passive), information on which was collected by clinician, exact methods / tools not reported (mean duration of gender-affirming hormone treatment was 10.9 months)									
1 cohort study Kuper et al. 2020	Serious limitations[4]	Serious indirectness [6]	No serious inconsistency	Not calculable	N=130	None	Lifetime = 81% (105 people) 1 month before initial assessment = 25% (33 people) Follow-up period = 38% (51 people) No statistical analysis reported	Critical	VERY LOW
Change from baseline in suicide attempts, information on which was collected by clinician, exact methods / tools not reported (mean duration of gender-affirming hormone treatment was 10.9 months)									
1 cohort study Kuper et al. 2020	Serious limitations[4]	Serious indirectness[6]	No serious inconsistency	Not calculable	N=130	None	Lifetime = 15% (20 people) 3 months before initial assessment = 2% (3 people) Follow-up period = 5% (6 people) No statistical analysis reported	Critical	VERY LOW
Change from baseline in non-suicidal self-injury, information on which was collected by clinician, exact methods / tools not reported (mean duration of gender-affirming hormone treatment was 10.9 months)									
1 cohort study Kuper et al. 2020	Serious limitations[4]	Serious indirectness[6]	No serious inconsistency	Not calculable	N=130	None	Lifetime = 52% (68 people) 3 months before initial assessment = 10% (13 people) Follow-up period = 17% (23 people) No statistical analysis reported	Critical	VERY LOW
Need for treatment due to suicidality / self-harm, during and before gender identity assessment, and during real life phase (approximately 12 months follow-up)									
1 cohort study Kaltiala et al. 2020	Serious limitations[7]	No serious indirectness	No serious inconsistency	Not calculable	N=52	None	During and before gender identity assessment 35% (18/52) During real life phase	Critical	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
							4% (2/52) Statistically significant reduction (p<0.001)		
Need for mental health treatment, during and before gender identity assessment, and during real life phase (approximately 12 months follow-up)									
1 cohort study Kaltiala et al. 2020	Serious limitations[7]	No serious indirectness	No serious inconsistency	Not calculable	N=52	None	During and before gender identity assessment 50% (26/52) During real life phase 46% (24/51) No statistically significant difference (p= 0.77)	Critical	VERY LOW
Need for treatment due to conduct problems / antisocial, during and before gender identity assessment, and during real life phase (approximately 12 months follow-up)									
1 cohort study Kaltiala et al. 2020	Serious limitations[7]	No serious indirectness	No serious inconsistency	Not calculable	N=52	None	During and before gender identity assessment 14% (7/52) During real life phase 6% (3/52) No statistically significant difference (p= 0.18)	Critical	VERY LOW
Need for treatment due to psychotic symptoms or psychosis, during and before gender identity assessment, and during real life phase (approximately 12 months follow-up)									
1 cohort study Kaltiala et al. 2020	Serious limitations[7]	No serious indirectness	No serious inconsistency	Not calculable	N=52	None	During and before gender identity assessment 2% (1/52) During real life phase 4% (2/52) No statistically significant difference (p= 0.56)	Critical	VERY LOW
Need for treatment due to substance abuse, during and before gender identity assessment, and during real life phase (approximately 12 months follow-up)									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
1 cohort study Kaltiala et al. 2020	Serious limitations[7]	No serious indirectness	No serious inconsistency	Not calculable	N=52	None	During and before gender identity assessment 4% (2/52) During real life phase 2% (1/52) No statistically significant difference (p= 0.56)	Critical	VERY LOW
Need for treatment due to autism, during and before gender identity assessment, and during real life phase (approximately 12 months follow-up)									
1 cohort study Kaltiala et al. 2020	Serious limitations[7]	No serious indirectness	No serious inconsistency	Not calculable	N=52	None	During and before gender identity assessment 12% (6/52) During real life phase 6% (3/52) No statistically significant difference (p= 0.30)	Critical	VERY LOW
Need for treatment due to ADHD, during and before gender identity assessment, and during real life phase (approximately 12 months follow-up)									
1 cohort study Kaltiala et al. 2020	Serious limitations[7]	No serious indirectness	No serious inconsistency	Not calculable	N=52	None	During and before gender identity assessment 10% (5/52) During real life phase 2% (1/52) No statistically significant difference (p= 0.09)	Critical	VERY LOW
Need for treatment due to eating disorder, during and before gender identity assessment, and during real life phase (approximately 12 months follow-up)									
1 cohort study Kaltiala et al. 2020	Serious limitations[7]	No serious indirectness	No serious inconsistency	Not calculable	N=52	None	During and before gender identity assessment 2% (1/52)	Critical	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
							During real life phase 2% (1/52) No statistically significant difference (p=1.0)		

Abbreviations: ADHD: attention deficit hyperactivity disorder; ASQ: Ask Suicide-Screening Questions; CESD-R: Center for Epidemiologic Studies Depression Scale; BDI-II: Beck Depression Inventory II (BDI-II); p: p-value; PHQ 9_Modified for Teens: Patient Health Questionnaire Modified for Teens; SCARED: Screen for Child Anxiety Related Emotional Disorders; SD: standard deviation; STAI: State-Trait Anxiety Inventory

1 Downgraded 1 level - the cohort study by Lopez de Lara et al. (2020) was assessed at high risk of bias (poor quality; lack of blinding and no control group).
2 Downgraded 1 level - the cohort study by Achille et al (2020) was assessed at high risk of bias (poor quality; lack of blinding, no control group and high number of participants lost to follow-up).
3 Serious indirectness in Achille 2020- Outcome reported for full study cohort, of whom 30% were taking no treatment or puberty suppression alone at follow-up. Results for people taking gender-affirming hormones not reported separately.[4] Downgraded 1 level - the cohort study by Kuper et al. (2020) was assessed at high risk of bias (poor quality).
5 Downgraded 1 level - the cohort study by Allen et al. (2019) was assessed at high risk of bias (poor quality; lack of blinding and no control group).
6 Serious indirectness in Kuper et al. 2020- Outcome reported for full study cohort, of whom approximately 17% received puberty suppression alone and did not receive gender-affirming hormones
7 Downgraded 1 level - the cohort study by Kaltiala et al. (2020) was assessed at high risk of bias (poor quality; lack of blinding and no control group).

Table 4: Question 1: For children and adolescents with gender dysphoria, what is the clinical effectiveness of treatment with gender-affirming hormones compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention? – Quality of life

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Impact on quality of life (1 uncontrolled, prospective observational study and 1 uncontrolled, retrospective observational study)									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Change from baseline in mean quality of life score, measured using the QLES-Q-SF) (approximately 12-month follow-up). Higher scores indicated better quality of life.									
1 cohort study Achille et al. 2020	Serious limitations[1]	Serious indirectness[2]	No serious inconsistency	Not calculable	N=50	None	Numerical improvements in mean score reported from wave 1 (baseline) to wave 3 (approx. 12 months), but difference not statistically significant (p = 0.085) Results presented diagrammatically, numerical results for mean score not reported	Critical	VERY LOW
Change from baseline in adjusted mean well-being score, measured using the GWBS of the Pediatric Quality of Life Inventory (mean treatment duration 349 days). Higher scores indicated better well-being.									
1 cohort study Allen et al. 2019	Serious limitations[3]	No serious indirectness	No serious inconsistency	Not calculable	N=39	None	T0 (baseline) = 61.70 (SE 2.43) T1 (final assessment) = 70.23 (SE 2.15) Statistically significant improvement in well-being score, p<0.002	Critical	VERY LOW

Abbreviations: GWBS: General Well-Being Scale; p: p-value; QLES-Q-SF: Quality of Life Enjoyment and Satisfaction Questionnaire; SE: standard error

1 Downgraded 1 level - the cohort study by Achille et al (2020) was assessed at high risk of bias (poor quality; lack of blinding, no control group and high number of participants lost to follow-up).
2 Serious indirectness in Achille et al. 2020 - Outcome reported for full study cohort, of whom 30% were taking no treatment or puberty suppression alone at follow-up. Results for people taking gender-affirming hormones not reported separately.
3 Downgraded 1 level - the cohort study by Allen et al. (2019) was assessed at high risk of bias (poor quality; lack of blinding and no control group).

Table 5: Question 1: For children and adolescents with gender dysphoria, what is the clinical effectiveness of treatment with gender-affirming hormones compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention? – Body image

QUALITY	Summary of findings	IMPORTANCE	CERTAINTY

					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result		
Impact on body image *(1 uncontrolled, prospective observational study)*									
Change from baseline in mean body image, measured using the BIS (mean duration of gender-affirming hormone treatment was 10.9 months). Higher scores represent a higher degree of body dissatisfaction.									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=86	None	Baseline = 70.7 (SD 15.2) Follow-up = 51.4 (SD 18.3) No statistical analysis reported for the sub-group of participants who received gender-affirming hormones	Important	VERY LOW

Abbreviations: BIS: Body Image Scale; p: p-value; SD: standard deviation

1 Downgraded 1 level - the cohort study by Kuper et al. (2020) was assessed at high risk of bias (poor quality; lack of blinding, no control group and high number of participants lost to follow-up).

Table 6: Question 1: For children and adolescents with gender dysphoria, what is the clinical effectiveness of treatment with gender-affirming hormones compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention? – Psychological impact

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Psychosocial Impact (1 uncontrolled, prospective observational study and 1 uncontrolled, retrospective observational study)									
Change from baseline in family functioning, measured using the Family APGAR test. Higher scores suggest more family dysfunction.									
1 cohort study Lopez de Lara et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=23	None	T0 (baseline) = 17.9 T1 (12 months) = 18.0 No statistical analysis reported	Important	VERY LOW
Change from baseline in mean patient strengths and difficulties score, measured using the SDQ, Spanish Version (total difficulties score) (duration of treatment 12 months). Higher scores suggest the presence of a behavioural disorder.									
1 cohort study	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=23	None	T0 (baseline) = 14.7 (SD 3.3) T1 (12 months) = 10.3 (SD 2.9)	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Lopez de Lara et al. 2020							Statistically significant improvement p<0.001		
Functioning in adolescent development: Living with parent(s)/ guardians[2] (outcome reported for the approximately 12-month period after starting gender-affirming hormones; referred to as the 'real-life phase' in Finland). Not living with parent(s) or guardian in your early 20s is a marker of age-appropriate functioning in Finnish culture.									
1 cohort study Kaltiala et al. 2020	Serious limitations[3]	No serious indirectness	No serious inconsistency	Not calculable	N=52	None	During gender identity assessment = 73% (38/52) During real life phase = 40% (21/50) Statistically significant reduction (p=0.001)	Important	VERY LOW
Functioning in adolescent development: Normative peer contacts[4] (outcome reported for the approximately 12-month period after starting gender-affirming hormones; referred to as the 'real-life phase' in Finland)									
1 cohort study Kaltiala et al. 2020	Serious limitations[3]	No serious indirectness	No serious inconsistency	Not calculable	N=52	None	During gender identity assessment = 89% (46/52) During real life phase = 81% (42/52) Statistically significant reduction (p<0.001)	Important	VERY LOW
Functioning in adolescent development: Progresses normatively in school/ work[5] (outcome reported for the approximately 12-month period after starting gender-affirming hormones; referred to as the 'real-life phase' in Finland)									
1 cohort study Kaltiala et al. 2020	Serious limitations[3]	No serious indirectness	No serious inconsistency	Not calculable	N=52	None	During gender identity assessment = 64% (33/52) During real life phase = 60% (31/52) No statistically significant difference (p=0.69)	Important	VERY LOW
Functioning in adolescent development: Has been dating or had steady relationships[6] (outcome reported for the approximately 12-month period after starting gender-affirming hormones; referred to as the 'real-life phase' in Finland)									
1 cohort study	Serious limitations[3]	No serious indirectness	No serious inconsistency	Not calculable	N=52	None	During gender identity assessment = 62% (32/50)	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Kaltiala et al. 2020							During real life phase = 58% (30/52) No statistically significant difference (p=0.51)		
Functioning in adolescent development: Is age-appropriately able to deal with matters outside of the home[7] (outcome reported for the approximately 12-month period after starting gender-affirming hormones; referred to as the 'real-life phase' in Finland)									
1 cohort study Kaltiala et al. 2020	Serious limitations[2]	No serious indirectness	No serious inconsistency	Not calculable	N=52	None	During gender identity assessment = 81% (42/52) During real life phase = 81% (42/52) No statistically significant difference (p=1.00)	Important	VERY LOW

Abbreviations: APGAR: Adaptability, Partnership, Growth, Affection and Resolve; p: p-value; SD: standard deviation; SDQ: Strengths and Difficulties Questionnaire

1 Downgraded 1 level - the cohort study by Lopez de Lara et al. (2020) was assessed at high risk of bias (poor quality; lack of blinding and no control group).
2 Living arrangements were classified as (1) living with at least one parent/guardian, (2) living in a boarding school, with an adult relative, in some form of supported accommodation or the like, where supervision and guidance by a responsible adult is provided, (3) independently alone or in a shared household with a peer, (4) with a romantic partner. In the analyses dichotomised living arrangements as (a) parent(s)/guardian(s) vs. in other arrangements.
3 Downgraded 1 level - the cohort study by Kaltiala et al. (2020) was assessed at high risk of bias (poor quality; lack of blinding and no control group).
4 Peer relationships were classified as: (1) socialises with friends in leisure time, outside of activities supervised by adults, (2) socialises with peers only at school or in the context of rehabilitative activity, (3) spends time close to peers, for example in school or rehabilitative activity, but does not connect with them, (4) does not meet peers at all. In the analyses, peer relationships during (a) gender identity assessment and (b) the real-life phase were dichotomized to age-appropriate (normative) (1) vs. restricted or lacking (2–4).
5 School/work participation was classified as (1) age appropriate participation in mainstream curriculum, progresses without difficulties, (2) participates in mainstream curriculum with difficulty, (3) participates in rehabilitative educational or work activity, (4) not involved in education and working life. Age-appropriate participation during (1) was recorded if the adolescent attended mainstream secondary education or upper secondary education at a regular rate (a class per year in comprehensive school; has not changed more than once between tracks in upper secondary education) or had proceeded to work life after completing vocational education. Participation with difficulty (2) was recorded if the adolescent was enrolled in mainstream education but had to repeat a class, studied with special arrangements (for example, in a special small group), or followed some form of adjusted curriculum. In the analyses, school/work life during (a) gender identity assessment and (b) real-life phase was dichotomised to normative (1) vs. any other (2, 3 or 4).
6 Romantic involvement was recorded (1) has or has had a dating or steady relationship, not only online, (2) has had a romantic relationship only online, (3) has not had dating or steady relationships. In the analyses we compared has or has had (1) vs. has not had (2,3) a dating or steady relationship during (a) gender identity assessment and (b) real-life phase. Sexual history was recorded in more detail in case histories during gender identity assessment, and for this period we also collected the experiences of (French) kissing (yes/no), intercourse (yes/no) and experience of any genitally intimate contact with a partner (petting under clothes or naked, intercourse, oral sex) (yes/no).

7 In recording age-appropriate competence in managing everyday matters it was expected that early adolescents (up to 14 years) would be able, for example, to do shopping and travel alone on local public transport, and to help with household duties assigned by their parents. Middle adolescents (15–17 years) were further assumed, for example, to be able make telephone calls in matters important to them (for example, when seeking a summer job), to deal with school-related issues with school personnel without parental participation, to select and start new hobbies independently and to fulfil their role in summer jobs and in similar responsibilities of young people. Late adolescents (18 years and over), legally adults, were expected to have, in addition to the above, competence to talk to authorities such as professionals in health and social services, employment or educational institutions, to deal with banks or health insurance, to manage their financial issues and to manage their housekeeping if they chose to move to live independently of parents/guardians. Competence in managing everyday matters was recorded as follows: (1) the adolescent is able to cope age appropriately outside home, (2) the adolescent needs support in age-appropriate matters outside home but functions age-appropriately in the home (manages her/his own hygiene, clothing and nutrition, participates in (younger subjects) or takes responsibility for (older subjects) housekeeping) and (3) the adolescent's functioning is inadequate both at home and outside home. For the analyses, participants were determined to be able to age-appropriately able cope with matters outside of the home (1) vs. not (2,3).

Table 7: Question 2: For children and adolescents with gender dysphoria, what is the short-term and long-term safety of gender-affirming hormones compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention? – Bone density

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Lumbar spine bone mineral apparent density (BMAD) (2 uncontrolled, retrospective observational studies)									
Change from start of gender-affirming hormones to age 22 years in lumber spine BMAD in transfemales									
1 cohort study Klink et al. 2015	Serious limitations[1]	Serious indirectness[2]	Not applicable	Not calculable	N=13 (Mean) N=14 (z-score)	None	Mean (SD), g/m^3 Start of gender-affirming hormones: 0.22 (0.02) Age 22 years: 0.23 (0.03) P=0.003 z-score (SD) Start of gender-affirming hormones: -0.90 (0.80) Age 22 years: -0.78 (1.03) No statistically significant difference	Important	VERY LOW
Change from baseline in lumbar spine BMAD in transfemales with a bone age less than 15 years ('young'; 24 months follow-up)									
1 cohort study Vlot et al. 2017	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=15	None	Median (range), g/m^3 Start of gender-affirming hormones (C0): 0.20 (0.18 to 0.24)	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
							24-month follow-up (C24): 0.22 (0.19 to 0.27) Statistically significant increase (p≤0.01) z-score (range) Start of gender-affirming hormones (C0): -1.52 (-2.36 to 0.42) 24-month follow-up (C24): -1.10 (-2.44 to 0.69) Statistically significant increase (p≤0.05)		
Change from baseline in lumbar spine BMAD in transfemales with a bone age of 15 years or more ('old'; 24 months follow-up)									
1 cohort study Vlot et al. 2017	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=5	None	Median (range), g/m^3 Start of gender-affirming hormones (C0): 0.22 (0.19 to 0.24) 24-month follow-up (C24): 0.23 (0.21 to 0.26) Statistically significant increase (p≤0.05) z-score (range) Start of gender-affirming hormones (C0): -1.15 (-2.21 to 0.08) 24-month follow-up (C24): -0.66 (-1.66 to 0.54) Statistically significant increase (p≤0.05)	Important	VERY LOW
Change from start of gender-affirming hormones to age 22 years in lumber spine BMAD in transmales									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
1 cohort study Klink et al. 2015	Serious limitations[1]	Serious indirectness[2]	Not applicable	Not calculable	N=19 (Mean and z-score)	None	Mean (SD), g/m^3 Start of gender-affirming hormones: 0.24 (0.02) Age 22 years: 0.25 (0.28) P=0.001 z-score Start of gender-affirming hormones: -0.50 (0.81) Age 22 years: -0.033 (0.95) P=0.002	Important	VERY LOW
Change from baseline in lumbar spine BMAD in transmales with a bone age of less than 14 years ('young'; 24 months follow-up)									
1 cohort study Vlot et al. 2017	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=11	None	Median (range), g/m^3 Start of gender-affirming hormones (C0): 0.23 (0.19 to 0.28) 24-month follow-up (C24): 0.25 (0.22 to 0.28) Statistically significant increase (p≤0.01) z-score (range) Start of gender-affirming hormones (C0): -0.84 (-2.2 to 0.87) 24-month follow-up (C24): -0.15 (-1.38 to 0.94) Statistically significant increase (p≤0.01)	Important	VERY LOW
Change from baseline in lumbar spine BMAD in transmales with a bone age of 14 years or more ('old'; 24 months follow-up)									
1 cohort study	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=23	None	Median (range), g/m^3	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Vlot et al. 2017							Start of gender-affirming hormones (C0): 0.24 (0.20 to 0.28) 24-month follow-up (C24): 0.25 (0.21 to 0.30) Statistically significant increase (p≤0.01) z-score (range) Start of gender-affirming hormones (C0): -0.29 (-2.28 to 0.90) 24-month follow-up (C24): -0.06 (-1.75 to 1.61) Statistically significant increase (p≤0.01)		
Change in femoral neck BMAD (2 uncontrolled, retrospective observational studies)									
Change from start of gender-affirming hormones to age 22 years in femoral neck BMAD in transfemales									
1 cohort study Klink et al. 2015	Serious limitations[1]	Serious indirectness[2]	Not applicable	Not calculable	N=14 (Mean) N=10 (z-score)	None	Mean (SD), g/m^3 Start of gender-affirming hormones: 0.26 (0.04) Age 22 years: 0.28 (0.05) No statistically significant difference z-score (SD) Start of gender-affirming hormones: -1.57 (1.74) Age 22 years: Not reported	Important	VERY LOW
Change from baseline in femoral neck BMAD in transfemales with a bone age less than 15 years ('young'; 24 months follow-up)									
1 cohort study	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=16	None	Median (range), g/m^3 C0: 0.27 (0.20 to 0.33) C24: 0.27 (0.20 to 0.36)	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Vlot et al. 2017							No statistically significant change z-score (range) C0: -1.32 (-3.39 to 0.21) C24: -1.30 (-3.51 to 0.92) No statistically significant change		
Change from baseline in femoral neck BMAD in transfemales with a bone age of 15 years or more ('old'; 24 months follow-up)									
1 cohort study Vlot et al. 2017	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=6	None	Median (range), g/m^3 C0: 0.30 (0.26 to 0.34) C24: 0.29 (0.24 to 0.38) No statistically significant change z-score (range) C0: -0.36 (-1.50 to 0.46) C24: -0.56 (-2.17 to 1.29) No statistically significant change	Important	VERY LOW
Change from start of gender-affirming hormones to age 22 years in femoral neck BMAD in transmales									
1 cohort study Klink et al. 2015	Serious limitations[1]	Serious indirectness[2]	Not applicable	Not calculable	N=19 (Mean) N=18 (z-score)	None	Mean (SD), g/m^3 Start of gender-affirming hormones: 0.31 (0.04) Age 22 years: 0.33 (0.05) P=0.010 z-score (SD) Start of gender-affirming hormones: -0.28 (0.74) Age 22 years: Not reported	Important	VERY LOW
Change from baseline in femoral neck BMAD in transmales with a bone age of less than 14 years ('young'; 24 months follow-up)									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
1 cohort study Vlot et al. 2017	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=10	None	Median (range), g/m^3 C0: 0.30 (0.22 to 0.35) C24: 0.33 (0.23 to 0.37) Statistically significant increase (p≤0.01) z-score (range) C0: -0.37 (-2.28 to 0.47) C24: -0.37 (-2.03 to 0.85) Statistically significant increase (p≤0.01)	Important	VERY LOW
Change from baseline in femoral neck BMAD in transmales with a bone age of 14 years or more ('old'; 24 months follow-up)									
1 cohort study Vlot et al. 2017	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=23	None	Median (range), g/m^3 C0: 0.30 (0.23 to 0.41) C24: 0.32 (0.23 to 0.41) Statistically significant increase (p≤0.01) z-score (range) C0: -0.27 ((-1.91 to 1.29) C24: 0.02 (-2.1 to 1.35) Statistically significant increase (p≤0.05)	Important	VERY LOW
Change in lumbar spine BMD (2 uncontrolled, retrospective observational studies)									
Change from start of gender-affirming hormones to age 22 years in lumbar spine BMD in transfemales									
1 cohort study Klink et al. 2015	Serious limitations[1]	Serious indirectness[2]	Not applicable	Not calculable	N=15 (Mean) N=13 (z-score)	None	Mean (SD), g/m^2 Start of gender-affirming hormones: 0.84 (0.11) Age 22 years: 0.93 (0.10) P<0.001 z-score (SD)	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
							Start of gender-affirming hormones: -1.01 (0.98) Age 22 years: -1.36 (0.83) No statistically significant difference		
Change from start of gender-affirming hormones to age 22 years in lumbar spine BMD in transmales									
1 cohort study Klink et al. 2015	Serious limitations[1]	Serious indirectness[2]	Not applicable	Not calculable	N=19 (Mean and z-score)	None	Mean (SD), g/m^2 Start of gender-affirming hormones: 0.91 (0.10) Age 22 years: 0.99 (0.13) P<0.001 z-score (SD) Start of gender-affirming hormones: -0.72 (0.99) Age 22 years: -0.33 (1.12) No statistically significant difference	Important	VERY LOW
Change from start of testosterone treatment in lumbar spine BMD in transmen (follow-up 6 to 24 months)									
1 cohort study Stoffers et al. 2019	Serious limitations[4]	No serious indirectness	Not applicable	Not calculable	N=62 (T0 and T6) N=37 (T12) N=15 (T24)	None	Mean (SD), g/cm^2 T0: 0.90 (0.11) T6: 0.94 (0.10) T12: 0.95 (0.09) T24: 0.95 (0.11) No statistically significant difference from T0 to any timepoint z-score (SD) T0: -0.81 (1.02) T6: -0.67 (0.95) T12: -0.66 (0.81) T24: -0.74 (1.17)	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
							No statistically significant difference from T0 to any timepoint		
Change in femoral neck BMD (2 uncontrolled, retrospective observational studies)									
Change from start of gender-affirming hormones to age 22 years in femoral neck BMD in transfemales									
1 cohort study Klink et al. 2015	Serious limitations[1]	Serious indirectness[2]	Not applicable	Not calculable	N=15 (Mean) N=11 (z-score)	None	Mean (SD), g/m^2 Start of gender-affirming hormones: 0.87 (0.08) Age 22 years: 0.94 (0.11) P=0.009 z-score (SD) Start of gender-affirming hormones: -0.95 (0.63) Age 22 years: -0.69 (0.74) No statistically significant difference	Important	VERY LOW
Change from start of gender-affirming hormones to age 22 years in femoral neck BMD in transmales									
1 cohort study Klink et al. 2015	Serious limitations[1]	Serious indirectness[2]	Not applicable	Not calculable	N=19 (Mean) N=16 (z-score)	None	Mean (SD), g/m^2 Start of gender-affirming hormones: 0.88 (0.09) Age 22 years: 0.95 (0.10) P<0.001 z-score (SD) Start of gender-affirming hormones: -0.35 (0.79) Age 22 years: -0.35 (0.74) P=0.006	Important	VERY LOW
Change from start of testosterone treatment in right femoral neck (hip) BMD in transmales (follow-up 6 to 24 months)									
1 cohort study	Serious limitations[4]	No serious indirectness	Not applicable	Not calculable	N=62 (T0 and T6)	None	Mean (SD), g/cm^2 T0: 0.77 (0.08)	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Stoffers et al. 2019					N=37 (T12) N=15 (T24)		T6: 0.84 (0.11) T12: 0.82 (0.08) T24: 0.85 (0.11) No statistically significant difference from T0 to any timepoint z-score (SD) T0: -0.97 (0.79) T6: -0.54 (0.96) T12: -0.80 (0.69) T24: -0.31 (0.84) No statistically significant difference from T0 to any timepoint		
Change from start of testosterone treatment in left femoral neck (hip) BMD in transmales (follow-up 6 to 24 months)									
1 cohort study Stoffers et al. 2019	Serious limitations[4]	No serious indirectness	Not applicable	Not calculable	N=62 (T0 and T6) N=37 (T12) N=15 (T24)	None	Mean (SD), g/cm^2 T0: 0.76 (0.09) T6: 0.83 (0.12) T12: 0.81 (0.08) T24: 0.86 (0.09) No statistically significant difference from T0 to any timepoint z-score (SD) T0: -1.07 (0.85) T6: -0.62 (1.12) T12: -0.93 (0.63) T24: -0.20 (0.70) No statistically significant difference from T0 to any timepoint	Important	VERY LOW

Abbreviations: BMAD: bone mineral apparent density; BMD: bone mineral density; g: grams; m: metre; SD: standard deviation

1 Downgraded 1 level - the cohort study by Klink et al. (2015) was assessed as at high risk of bias (poor quality overall; lack of blinding, no control group and high number of participants lost to follow-up)
2 Outcomes reported after gender reassignment surgery and not after gender-affirming hormones alone. Unclear whether observed changes are due to hormones or surgery
3 Downgraded 1 level - the cohort study by Vlot et al. (2017) was assessed as at high risk of bias (poor quality overall; lack of blinding and no control)
4 Downgraded 1 level - the cohort study by Stoffers et al. (2019) was assessed as at high risk of bias (poor quality overall; lack of blinding and no control group)

Table 8: Question 2: For children and adolescents with gender dysphoria, what is the short-term and long-term safety of gender-affirming hormones compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention? – Cardiovascular risk factors

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Change in body mass index (1 uncontrolled, retrospective observational study)									
Change from start of gender-affirming hormones to age 22 years in BMI in transfemales									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=71	None	Mean change (95% CI) +1.9 (0.6 to 3.2) Statistically significant increase (p<0.005) Mean BMI at 22 years (95% CI): 23.2 (21.6 to 24.8)	Important	VERY LOW
Change from start of gender-affirming hormones to age 22 years in BMI in transmales									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=121	None	Mean change (95% CI) +1.4 (0.8 to 2.0) Statistically significant increase (p<0.005) Mean BMI at 22 years (95% CI): 23.9 (23.0 to 24.7)	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Obesity rates at age 22 years (1 uncontrolled, retrospective observational study)									
Obesity rates at age 22 years in transfemales who started gender-affirming hormones as adolescents (1 uncontrolled, retrospective observational study)									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=71	None	At 22 years, 9.9% of transfemales were obese, compared with 3.0% in reference cisgender population No statistically analysis reported	Important	VERY LOW
Obesity rates at age 22 years in transfemales who started gender-affirming hormones as adolescents (1 uncontrolled, retrospective observational study)									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=121	None	At 22 years, 6.6% of transmales were obese, compared with 2.2% in reference cisgender population No statistically analysis reported	Important	VERY LOW
Change in blood pressure (1 uncontrolled, retrospective observational study)									
Change from start of gender-affirming hormones to age 22 years in systolic blood pressure (SBP) in transfemales									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=71	None	Mean change (95% CI) -3 (-8 to 2) No statistically significant difference Mean SBP at 22 years (95% CI): 117 (113 to 122)	Important	VERY LOW
Change from start of gender-affirming hormones to age 22 years in diastolic blood pressure (DBP) in transfemales									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=71	None	Mean change (95% CI) +6 (3 to 10) Statistically significant increase (p<0.001) Mean DBP at 22 years (95% CI): 75 (72 to 78)	Important	VERY LOW
Change from start of gender-affirming hormones to age 22 years in systolic blood pressure (SBP) in transmales									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=121	None	Mean change (95% CI): +5 (1 to 9) Statistically significant increase (p<0.05) Mean SBP at 22 years (95% CI): 126 (122 to 130)	Important	VERY LOW
Change from start of gender-affirming hormones to age 22 years in diastolic blood pressure (DBP) in transmales									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=121	None	Mean change (95% CI): +6 (4 to 9) Statistically significant increase (p<0.001) Mean DBP at 22 years (95% CI): 74 (72 to 77)	Important	VERY LOW
Change in glucose levels, insulin levels, insulin resistance and HbA1c (2 uncontrolled, retrospective observational studies)									
Change from start of gender-affirming hormones to age 22 years in glucose level (mmol/L) in transfemales									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=71	None	Mean change (95% CI): +0.1 (-0.1 to 0.2)	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
							No statistically significant difference Mean glucose level at 22 years (95% CI): 5.0 (4.8 to 5.1)		
Change from start of gender-affirming hormones to age 22 years in insulin level (mU/L) in transfemales									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=71	None	Mean change (95% CI) +2.7 (-1.7 to 7.1) No statistically significant difference Mean insulin level at 22 years (95% CI): 13.0 (8.4 to 17.6)	Important	VERY LOW
Change from start of gender-affirming hormones to age 22 years in insulin resistance (HOMA-IR) in transfemales. Higher scores indicate more insulin resistance.									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=71	None	Mean change (95% CI) +0.7 (-0.2 to 1.5) No statistically significant difference Mean HOMA-IR at 22 years (95% CI): 2.9 (1.9 to 3.9)	Important	VERY LOW
Change from start of gender-affirming hormones to age 22 years in glucose level (mmol/L) in transmales									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=121	None	Mean change (95% CI) 0.0 (-0.2 to 0.2) No statistically significant difference	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
							Mean glucose level at 22 years (95% CI): 4.8 (4.7 to 5.0)		
Change from start of gender-affirming hormones to age 22 years in insulin level (mU/L) in transmales									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=121	None	Mean change (95% CI) -2.1 (-3.9 to -0.3) Statistically significant decrease (p<0.05) Mean insulin level at 22 years (95% CI): 8.6 (6.9 to 10.2)	Important	VERY LOW
Change from start of gender-affirming hormones to age 22 years in insulin resistance (HOMA-IR) in transmales. Higher scores indicate more insulin resistance.									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=121	None	Mean change (95% CI): -0.5 (-1.0 to -0.1) Statistically significant decrease (p<0.05) Mean HOMA-IR at 22 years (95% CI): 1.8 (1.4 to 2.2)	Important	VERY LOW
Change from start of testosterone in HbA1c in transmales (up to 24 months follow-up)									
1 cohort study Stoffers et al. 2019	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N= Not reported	None	No statistically significant change from start of testosterone treatment Numerical results, follow-up duration and further details of	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
							statistical analysis not reported.		
Change in lipid profile (1 uncontrolled, retrospective observational study)									
Change from start of gender-affirming hormones to age 22 years in total cholesterol (mmol/L) in transfemales									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=71	None	Mean change (95% CI): +0.1 (-0.2 to 0.4) No statistically significant difference Mean total cholesterol at 22 years (95% CI): 4.1 (3.8 to 4.4)	Important	VERY LOW
Change from start of gender-affirming hormones to age 22 years in HDL cholesterol (mmol/L) in transfemales									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=71	None	Mean change (95% CI): 0.0 (-0.1 to 0.2) No statistically significant difference Mean HDL cholesterol at 22 years (95% CI): 1.6 (1.4 to 1.7)	Important	VERY LOW
Change from start of gender-affirming hormones to age 22 years in LDL cholesterol (mmol/L) in transfemales									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=71	None	Mean change (95% CI): 0.0 (-0.3 to 0.2) No statistically significant difference Mean LDL cholesterol at 22 years (95% CI): 2.0 (1.8 to 2.3)	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Change from start of gender-affirming hormones to age 22 years in triglycerides (mmol/L) in transfemales									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=71	None	Mean change (95% CI): +0.2 (0.0 to 0.5) Statistically significant increase (p<0.05) Mean triglycerides at 22 years (95% CI): 1.1 (0.9 to 1.4)	Important	VERY LOW
Change from start of gender-affirming hormones to age 22 years in total cholesterol (mmol/L) in transmales									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=121	None	Mean change (95% CI): +0.4 (0.2 to 0.6) Statistically significant increase (p<0.001) Mean total cholesterol at 22 years (95% CI): 4.6 (4.3 to 4.8)	Important	VERY LOW
Change from start of gender-affirming hormones to age 22 years in HDL cholesterol (mmol/L) in transmales									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=121	None	Mean change (95% CI) -0.3 (-0.4 to -0.2) Statistically significant decrease (p<0.001) Mean HDL cholesterol at 22 years (95% CI): 1.3 (1.2 to 1.3)	Important	VERY LOW
Change from start of gender-affirming hormones to age 22 years in LDL cholesterol (mmol/L) in transmales									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=121	None	Mean change (95% CI): +0.4 (0.2 to 0.6)	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
							Statistically significant increase (p<0.001) Mean LDL cholesterol at 22 years (95% CI): 2.6 (2.4 to 2.8)		
Change from start of gender-affirming hormones to age 22 years in triglycerides (mmol/L) in transmales									
1 cohort study Klaver et al. 2020	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=121	None	Mean change (95% CI) +0.5 (0.3 to 0.7) Statistically significant increase (p<0.001) Mean triglycerides at 22 years (95% CI): 1.3 (1.1 to 1.5)	Important	VERY LOW

Abbreviations: BMI: boss mass index; CI: confidence interval; DBP: diastolic blood pressure; HbA1c: glycated haemoglobin; HDL: high-density lipoproteins; HOMA-IR: Homeostatic Model Assessment of Insulin Resistance; LDL: low-density lipoproteins; mmol/L: millimoles per litre; mU/L: milliunits per litre; SBP: systolic blood pressure; SD: standard deviation

1 Downgraded 1 level - the cohort study by Klaver et al. (2020) was assessed as at high risk of bias (poor quality overall; lack of blinding and no control group)
2 Downgraded 1 level - the cohort study by Stoffers et al. (2019) was assessed as at high risk of bias (poor quality overall; lack of blinding and no control group)

Table 9: Question 2: For children and adolescents with gender dysphoria, what is the short-term and long-term safety of gender-affirming hormones compared with one or a combination of psychological support, social transitioning to the desired gender or no intervention? – Other safety outcomes

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Liver enzymes (1 uncontrolled, retrospective observational study)									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Change from start of testosterone in aspartate aminotransferase (AST) level in transmales (up to 24 months follow-up)									
1 cohort study Stoffers et al. 2019	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N= Not reported	None	No statistically significant change from start of testosterone treatment Numerical results, follow-up duration and further details of statistical analysis not reported.	Important	VERY LOW
Change from start of testosterone in alanine aminotransferase (ALT) level in transmales (up to 24 months follow-up)									
1 cohort study Stoffers et al. 2019	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N= Not reported	None	No statistically significant change from start of testosterone treatment Numerical results, follow-up duration and further details of statistical analysis not reported.	Important	VERY LOW
Change from start of testosterone in gamma-glutamyl transferase (GGT) level in transmales (up to 24 months follow-up)									
1 cohort study Stoffers et al. 2019	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N= Not reported	None	No statistically significant change from start of testosterone treatment Numerical results, follow-up duration and further details of statistical analysis not reported.	Important	VERY LOW
Change from start of testosterone in alkaline phosphatase (ALP) level in transmales (up to 24 months follow-up)									
1 cohort study Stoffers et al. 2019	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=62 (T0 and T1) N=37 (T12)	None	Median (IQR), U/L T0: 102 (78 to 136) T6: 115 (102 to 147) T12: 112 (88 to 143) T24: 81 (range 69 to 98)	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
					N-15 (T24)		Statistically significant increase from T0 at T6 and T12 (p<0.001)		
Kidney markers (1 uncontrolled, retrospective observational study)									
Change from start of testosterone in serum creatinine level in transmales (up to 24 months follow-up)									
1 cohort study Stoffers et al. 2019	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N=62 (T0 and T1) N=37 (T12) N=15 (T24)	None	Mean (SD), umol/L T0: 62 (7) T6: 70 (9) T12: 74 (10) T24: 81 (10) Statistically significant increase from T0 at all timepoints (p<0.001)	Important	VERY LOW
Change from start of testosterone in serum urea[2] level in transmales (up to 24 months follow-up)									
1 cohort study Stoffers et al. 2019	Serious limitations[1]	No serious indirectness	Not applicable	Not calculable	N= Not reported	None	No statistically significant change from start of testosterone treatment Numerical results, follow-up duration and further details of statistical analysis not reported.	Important	VERY LOW
Adverse effects (1 uncontrolled, retrospective observational study)									
Permanent discontinuation of gender-affirming hormones (median follow-up 2.0 years (range 0.0 to 11.3)									
1 cohort study Khatchadourian et al. 2014	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=63	None	No participants permanently discontinued gender-affirming hormones.	Important	VERY LOW
Temporary discontinuation of gender-affirming hormones (median follow-up 2.0 years (range 0.0 to 11.3)									
1 cohort study	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=63	None	3/37 transmales receiving testosterone temporarily	Important	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Khatchadourian et al. 2014							discontinued treatment, 2 due to concomitant mental health comorbidities and 1 due to androgenic alopecia. All eventually resumed treatment. No transfemales receiving oestrogen temporarily discontinued treatment		
Minor complications during treatment with gender-affirming hormones (median follow-up 2.0 years (range 0.0 to 11.3)									
1 cohort study Khatchadourian et al. 2014	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=63	None	12/63 participants had minor complications during treatment with gender-affirming hormones All 12 were transmales receiving testosterone. Complications were severe acne (n=7), androgenic alopecia (n=1) mild dyslipidaemia (n=3) and significant mood swings (n=1) No transfemales receiving oestrogen had minor complications	Important	VERY LOW
Severe complications during treatment with gender-affirming hormones (median follow-up 2.0 years (range 0.0 to 11.3)									
1 cohort study Khatchadourian et al. 2014	Serious limitations[3]	No serious indirectness	Not applicable	Not calculable	N=63	None	No severe complications reported during gender-affirming treatment	Important	VERY LOW

Abbreviations: ALP: alkaline phosphatase; ALT: alanine aminotransferase; AST: aspartate aminotransferase; GGT: gamma-glutamyl transferase; IQR: interquartile range; SD: standard deviation; U/L: units per litre; umol/L: micromole per litre

1 Downgraded 1 level - the cohort study by Stoffers et al. (2019) was assessed as at high risk of bias (poor quality overall; lack of blinding and no control group)
2 Referred to as 'ureum' in original publication
3 Downgraded 1 level - the cohort study by Khatchadourian et al. (2014) was assessed as at high risk of bias (poor quality overall; lack of blinding, no control group and high number of participants lost to follow-up)

Table 10: From the evidence selected, are there particular sub-groups of children and adolescents with gender dysphoria that derive comparatively more (or less) benefit from treatment with gender-affirming hormones than the wider population of children and adolescents with gender dysphoria? – Transfemales compared with transmales

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Transfemales	Transmales	Result (95% CI)		
Impact on mental health (1 uncontrolled, retrospective observational study)									
Change from baseline in adjusted mean suicidality score, measured using the ASQ tool (mean treatment duration 349 days). Higher scores indicate a greater degree of suicidality.									
1 cohort study Allen et al. 2019	Serious limitations[4]	No serious indirectness	No serious inconsistency	Not calculable	N=14	N=33	**Transfemales** T0 (baseline) = 1.21 (SE 0.36) T1 (final assessment) = 0.24 (SE 0.19) **Transmales** T0 (baseline) = 1.01 (SE 0.23) T1 (final assessment) = 0.29 (SE 0.13) No statistically significant difference in change from baseline between transfemales and transmales (p=0.79)	Critical	VERY LOW
Impact on quality of life (1 uncontrolled, retrospective observational study)									
Change from baseline in adjusted mean well-being score, measured using the GWBS of the Pediatric Quality of Life Inventory (mean treatment duration 349 days). Higher scores indicate better well-being.									
1 cohort study Allen et al. 2019	Serious limitations[4]	No serious indirectness	No serious inconsistency	Not calculable	N=14	N=33	**Transfemales** T0 (baseline) = 58.44 (SE 4.09) T1 (final assessment) = 69.52 (SE 3.62)	Critical	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Transfemales	Transmales	Result (95% CI)		
							Transmales T0 (baseline) = 64.95 (SE 2.66) T1 (final assessment) = 70.94 (SE 2.35) No statistically significant difference in change from baseline between transfemales and transmales (p=0.32)		

Abbreviations: ASQ: Ask Suicide-Screening Questions; GWBS: General Well-Being Scale; SE: standard error

1 The cohort study by Allen et al. 2019 was assessed at high risk of bias (poor quality; lack of blinding and no control group).

Table 11: From the evidence selected, are there particular sub-groups of children and adolescents with gender dysphoria that derive comparatively more (or less) benefit from treatment with gender-affirming hormones than the wider population of children and adolescents with gender dysphoria? – Sex assigned at birth males (transfemales)

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study type and number of studies Author year	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Change from baseline in mean depression symptoms in transfemales, measured using the Quick Inventory of Depressive Symptoms (QIDS), self-reported (mean duration of gender-affirming hormone treatment 10.9 months). Higher scores indicate more depression.									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=40	None	Baseline = 7.5 (SD 4.9) Follow-up = 6.6 (SD 4.4) No statistical analysis reported for this sub-group	Critical	VERY LOW
Change from baseline in mean depression symptoms in transfemales, measured using the Quick Inventory of Depressive Symptoms (QIDS), clinician-reported (mean duration of gender-affirming hormone treatment 10.9 months). Higher scores indicate more severe depression.									
1 cohort study	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=45	None	Baseline = 4.2 (SD 3.2) Follow-up = 5.4 (SD 3.4)	Critical	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study type and number of studies Author year	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Kuper et al. 2020							No statistical analysis reported for this sub-group		
Change from baseline in mean anxiety symptoms in transfemales, measured using the SCARED questionnaire (mean duration of gender-affirming hormone treatment 10.9 months). Higher scores indicate more severe anxiety.									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=33	None	Baseline = 26.4 (SD 14.2) Follow-up = 24.3 (SD 15.4) No statistical analysis reported for this sub-group	Critical	VERY LOW
Change from baseline in mean panic symptoms in transfemales, measured using specific questions from the SCARED questionnaire (mean duration of gender-affirming hormone treatment 10.9 months). Higher scores indicate more severe symptoms.									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=34	None	Baseline = 5.7 (SD 4.9) Follow-up = 5.1 (SD 4.9) No statistical analysis reported for this sub-group	Critical	VERY LOW
Change from baseline in mean generalised anxiety symptoms in transfemales, measured using specific questions from the SCARED questionnaire (mean duration of gender-affirming hormone treatment was 10.9 months). Higher scores indicate more severe symptoms.									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=34	None	Baseline = 8.6 (SD 5.1) Follow-up = 8.0 (SD 5.1) No statistical analysis reported for this sub-group	Critical	VERY LOW
Change from baseline in mean social anxiety symptoms in transfemales, measured using specific questions from the SCARED questionnaire (mean duration of gender-affirming hormone treatment was 10.9 months). Higher scores indicate more severe symptoms.									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=34	None	Baseline = 7.1 (SD 3.9) Follow-up = 6.8 (SD 4.4) No statistical analysis reported for this sub-group	Critical	VERY LOW
Change from baseline in mean separation anxiety symptoms in transfemales, measured using specific questions from the SCARED questionnaire (mean duration of gender-affirming hormone treatment was 10.9 months). Higher scores indicate more severe symptoms.									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=34	None	Baseline = 3.4 (SD 3.3) Follow-up = 2.7 (SD 2.3) No statistical analysis reported for this sub-group	Critical	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of events/No of patients% (n/N%)		Effect		
Study type and number of studies Author year	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Change from baseline in mean school avoidance symptoms in transfemales, measured using specific questions from the SCARED questionnaire (mean duration of gender-affirming hormone treatment was 10.9 months). Higher scores indicate more severe symptoms.									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=33	None	Baseline = 1.8 (SD 1.7) Follow-up = 1.9 (SD 2.1) No statistical analysis reported for this sub-group	Critical	VERY LOW
Change from baseline in percentage of participants with suicidal ideation in transfemales, measured using the additional questions from the PHQ 9_Modified for Teens (approximately 12-month follow-up)									
1 cohort study Achille et al. 2020	Serious limitations[2]	Serious indirectness[2]	No serious inconsistency	Not calculable	N=17	None	Wave 1 (baseline) = 11.8% (2/17) Wave 2 (approx. 12 months) = 5.9% (1/17) No statistical analysis reported	Critical	VERY LOW
Impact on body image (1 uncontrolled, prospective observational study)									
Change from baseline in mean body image in transfemales, measured using the BIS (mean duration of gender-affirming hormone treatment was 10.9 months). Higher scores represent a higher degree of body dissatisfaction.									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=30	None	Baseline = 67.5 (SD 19.5) Follow-up = 49.0 (SD 21.6) No statistical analysis reported for this sub-group	Important	VERY LOW

Abbreviations: BIS: Body Image Scale; PHQ 9: Patient Health Questionnaire 9; SCARED: Screen for Child Anxiety Related Emotional Disorders; SD: standard deviation

1 Downgraded 1 level - the cohort study by Kuper et al. (2020) was assessed at high risk of bias (poor quality; lack of blinding, no control group and high number of participants lost to follow-up).
2 Downgraded 1 level - the cohort study by Achille et al. 2020 was assessed at high risk of bias (poor quality; lack of blinding, no control group and high number of participants lost to follow-up).
3 Serious indirectness in Achille 2020- Approximately 30% of the full sample received puberty suppression alone or were receiving no treatment at final follow-up.

Table 12: From the evidence selected, are there particular sub-groups of children and adolescents with gender dysphoria that derive comparatively more (or less) benefit from treatment with gender-affirming hormones than the wider population of children and adolescents with gender dysphoria? – Sex assigned at birth females (transmales)

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Change from baseline in mean depression symptoms in transmales, measured using the Quick Inventory of Depressive Symptoms (QIDS), self-reported (mean duration of gender-affirming hormone treatment 10.9 months). Higher scores indicate more severe depression.									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=76	None	Baseline = 10.4 (SD 5.0) Follow-up = 7.5 (SD 4.5) No statistical analysis reported for this sub-group	Critical	VERY LOW
Change from baseline in mean depression symptoms in transmales, measured using the Quick Inventory of Depressive Symptoms (QIDS), clinician-reported (mean duration of gender-affirming hormone treatment 10.9 months). Higher scores indicate more severe depression.									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=78	None	Baseline = 6.7 (SD 4.4) Follow-up = 6.2 (SD 4.1) No statistical analysis reported for this sub-group	Critical	VERY LOW
Change from baseline in mean anxiety symptoms in transmales, measured using the SCARED questionnaire (mean duration of gender-affirming hormone treatment 10.9 months). Higher scores indicate more severe anxiety.									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=65	None	Baseline = 35.4 (SD 16.5) Follow-up = 29.8 (SD 15.5) No statistical analysis reported for this sub-group	Critical	VERY LOW
Change from baseline in mean panic symptoms in transmales, measured using specific questions from the SCARED questionnaire (mean duration of gender-affirming hormone treatment 10.9 months). Higher scores indicate more severe symptoms.									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=66	None	Baseline = 9.3 (SD 6.5) Follow-up = 7.9 (SD 6.5) No statistical analysis reported for this sub-group	Critical	VERY LOW
Change from baseline in mean generalised anxiety symptoms in transmales, measured using specific questions from the SCARED questionnaire (mean duration of gender-affirming hormone treatment was 10.9 months). Higher scores indicate more severe symptoms.									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=66	None	Baseline = 10.4 (SD 5.0) Follow-up = 9.0 (SD 5.1) No statistical analysis reported for this sub-group	Critical	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Change from baseline in mean social anxiety symptoms in transmales, measured using specific questions from the SCARED questionnaire (mean duration of gender-affirming hormone treatment was 10.9 months). Higher scores indicate more severe symptoms.									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=66	None	Baseline = 8.5 (SD 4.0) Follow-up = 7.8 (SD 4.1) No statistical analysis reported for this sub-group	Critical	VERY LOW
Change from baseline in mean separation anxiety symptoms in transmales, measured using specific questions from the SCARED questionnaire (mean duration of gender-affirming hormone treatment was 10.9 months). Higher scores indicate more severe symptoms.									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=65	None	Baseline = 4.2 (SD 3.4) Follow-up = 3.4 (SD 2.6) No statistical analysis reported for this sub-group	Critical	VERY LOW
Change from baseline in mean school avoidance symptoms in transmales, measured using specific questions from the SCARED questionnaire (mean duration of gender-affirming hormone treatment was 10.9 months). Higher scores indicate more severe symptoms.									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=65	None	Baseline = 2.9 (SD 2.3) Follow-up = 2.0 (SD 2.3) No statistical analysis reported for this sub-group	Critical	VERY LOW
Change from baseline in percentage of participants with suicidal ideation in transmales, measured using the additional questions from the PHQ 9_Modified for Teens (approximately 12-month follow-up)									
1 cohort study Achille et al. 2020	Serious limitations[2]	Serious indirectness[3]	No serious inconsistency	Not calculable	N=33	None	Wave 1 (baseline) = 9.1% (3/33) Wave 2 (approx. 12 months) = 6.1% (2/33) No statistical analysis reported	Critical	VERY LOW
Impact on body image (1 uncontrolled, prospective observational study)									
Change from baseline in mean body image in transmales, measured using the BIS (mean duration of gender-affirming hormone treatment was 10.9 months). Higher scores represent a higher degree of body dissatisfaction.									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=66	None	Baseline = 71.1 (SD 13.4) Follow-up = 52.9 (SD 16.8) No statistical analysis reported for this sub-group	Important	VERY LOW

Abbreviations: BIS: Body Image Scale; PHQ 9: Patient Health Questionnaire 9; SCARED: Screen for Child Anxiety Related Emotional Disorders; SD: standard deviation

1 Downgraded 1 level - the cohort study by Kuper et al. (2020) was assessed at high risk of bias (poor quality; lack of blinding, no control group and high number of participants lost to follow-up).
2 Downgraded 1 level - the cohort study by Achille et al. 2020 was assessed at high risk of bias (poor quality; lack of blinding, no control group and high number of participants lost to follow-up).
3 Serious indirectness in Achille 2020- Approximately 30% of the full sample received puberty suppression alone or were receiving no treatment at final follow-up.

Table 14: From the evidence selected, are there particular sub-groups of children and adolescents with gender dysphoria that derive comparatively more (or less) benefit from treatment with gender-affirming hormones than the wider population of children and adolescents with gender dysphoria? – Outcomes controlled for concurrent counselling and medicines for mental health problems

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Impact on mental health (1 uncontrolled, retrospective observational study)									
Change from baseline in mean depression score in transfemales, measured using the CESD-R (approximately 12-month follow-up; controlled for engagement in counselling and medicines for mental health problems). Higher scores indicate more depression.									
1 cohort study Achille et al. 2020	Serious limitations[1]	Serious indirectness[2]	No serious inconsistency	Not calculable	N=17	None	No statistically significant change from baseline (p=0.27) Numerical scores not reported	Critical	VERY LOW
Change from baseline in mean depression score in transmales, measured using the CESD-R (approximately 12-month follow-up; controlled for engagement in counselling and medicines for mental health problems). Higher scores indicate more severe depression.									
1 cohort study Achille et al. 2020	Serious limitations[1]	Serious indirectness[2]	No serious inconsistency	Not calculable	N=33	None	No statistically significant change from baseline (p=0.43) Numerical scores not reported	Critical	VERY LOW
Change from baseline in depression score in transfemales, measured using the Patient Health Questionnaire Modified for Teens (PHQ 9_Modified for Teens) (approximately 12-month follow-up; controlled for engagement in counselling and medicines for mental health problems). Higher scores indicate more severe depression.									
1 cohort study Achille et al. 2020	Serious limitations[1]	Serious indirectness[2]	No serious inconsistency	Not calculable	N=17	None	No statistically significant change from baseline (p=0.07) Numerical scores not reported	Critical	VERY LOW

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Change from baseline in depression score in transmales, measured using the Patient Health Questionnaire Modified for Teens (PHQ 9_Modified for Teens) (approximately 12-month follow-up; controlled for engagement in counselling and medicines for mental health problems). Higher scores indicate more severe depression.									
1 cohort study Achille et al. 2020	Serious limitations[1]	Serious indirectness[2]	No serious inconsistency	Not calculable	N=33	None	No statistically significant change from baseline (p=0.67) Numerical scores not reported	Critical	VERY LOW
Impact on quality of life (1 uncontrolled, retrospective observational study)									
Change from baseline in mean quality of life score in transfemales, measured using the QLES-Q-SF (approximately 12-month follow-up; controlled for engagement in counselling and medicines for mental health problems). Higher scores indicated better quality of life.									
1 cohort study Achille et al. 2020	Serious limitations[1]	Serious indirectness[2]	No serious inconsistency	Not calculable	N=17	None	No statistically significant change from baseline (p=0.06)	Critical	VERY LOW
Change from baseline in mean quality of life score in transmales, measured using the QLES-Q-SF (approximately 12-month follow-up; controlled for engagement in counselling and medicines for mental health problems). Higher scores indicated better quality of life.									
1 cohort study Achille et al. 2020	Serious limitations[1]	Serious indirectness[2]	No serious inconsistency	Not calculable	N=33	None	No statistically significant change from baseline (p=0.08)	Critical	VERY LOW
Psychosocial Impact (1 uncontrolled, retrospective observational study)									
Functioning in adolescent development: Progresses normatively in school/ work during the real-life phase – impact on need for mental health treatment before or during gender identity assessment									
1 cohort study Kaltiala et al. 2020	Serious limitations[3]	No serious indirectness	No serious inconsistency	Not calculable	N=49	None	Needed mental health treatment: 47% (15/32) functioning well Did not need mental health treatment: 82% (14/17) functioning well Statistically significant difference p=0.02	Important	VERY LOW
Functioning in adolescent development: Is age-appropriately able to deal with matters outside of the home during the real-life phase – impact on need for mental health treatment before or during gender identity assessment									

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
1 cohort study Kaltiala et al. 2020	Serious limitations[3]	No serious indirectness	No serious inconsistency	Not calculable	N=49	None	Needed mental health treatment: 72% (23/32) managing well Did not need mental health treatment: 94% (16/17) managing well No statistically significant difference p=0.06	Important	VERY LOW
Functioning in adolescent development: Progresses normatively in school/ work during the real-life phase – impact on need for mental health treatment during the real-life phase									
1 cohort study Kaltiala et al. 2020	Serious limitations[3]	No serious indirectness	No serious inconsistency	Not calculable	N=51	None	Needed mental health treatment: 42% (10/24) functioning well Did not need mental health treatment: 74% (20/27) functioning well Statistically significant difference p=0.02	Important	VERY LOW
Functioning in adolescent development: Is age-appropriately able to deal with matters outside of the home during the real-life phase – impact on need for mental health treatment during the real-life phase									
1 cohort study Kaltiala et al. 2020	Serious limitations[3]	No serious indirectness	No serious inconsistency	Not calculable	N=51	None	Needed mental health treatment: 67% (16/24) managing well Did not need mental health treatment: 93% (25/27) managing well Statistically significant difference p=0.02	Important	VERY LOW

Abbreviations: CESD-R: Center for Epidemiologic Studies Depression; p: p-value; PHQ 9: Patient Health Questionnaire 9; QLES-Q-SF: Quality of Life Enjoyment and Satisfaction Questionnaire

1 Downgraded 1 level - the cohort study by Achille et al 2020 was assessed at high risk of bias (poor quality; lack of blinding, no control group and high number of participants lost to follow-up).
2 Serious indirectness in Achille 2020- Approximately 30% of the full sample received puberty suppression alone or were receiving no treatment at final follow-up.
3 Downgraded 1 level - the cohort study by Kaltiala et al. 2020 was assessed at high risk of bias (poor quality; lack of blinding and no control).

Table 15: From the evidence selected, are there particular sub-groups of children and adolescents with gender dysphoria that derive comparatively more (or less) benefit from treatment with gender-affirming hormones than the wider population of children and adolescents with gender dysphoria? – Tanner age

QUALITY					Summary of findings			IMPORTANCE	CERTAINTY
					No of patients		Effect		
Study	Risk of bias	Indirectness	Inconsistency	Imprecision	Intervention	Comparator	Result (95% CI)		
Impact on mental health (1 uncontrolled, retrospective observational study)									
Change from baseline in mental health problems – depression, anxiety and anxiety-related symptoms (mean duration of gender-affirming hormone treatment was 10.9 months)									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=105	None	No difference in outcomes found by Tanner age. Numerical results, statistical analysis and information on specific outcomes not reported. It is unclear from the paper whether Tanner age is at initial assessment, start of GnRH analogues, start of gender-affirming hormones, or another timepoint	Critical	VERY LOW
Impact on body image (1 uncontrolled, prospective observational study)									
Change from baseline in mean body image, measured using the BIS (mean duration of gender-affirming hormone treatment was 10.9 months). Higher scores represent a higher degree of body dissatisfaction.									
1 cohort study Kuper et al. 2020	Serious limitations[1]	No serious indirectness	No serious inconsistency	Not calculable	N=105	None	No difference in body image score found by Tanner age. Numerical results, statistical analysis and information on specific outcomes not reported.	Important	VERY LOW

							It is unclear from the paper whether Tanner age is at initial assessment, start of GnRH analogues, start of gender-affirming hormones, or another timepoint		

Abbreviations: BIS: Body Image Scale

1 Downgraded 1 level - the cohort study by Kuper et al. 2020 was assessed at high risk of bias (poor quality; lack of blinding, no control group and high number of participants lost to follow-up).

Glossary

Ask Suicide-Screening Questions (ASQ)	ASQ is a four-item dichotomous (yes, no) response measure with high sensitivity, designed to identify risk of suicide. A patient is considered to have screened positive if they answered yes to any item. The authors of Allen et al. 2019 altered the fourth item of the ASQ ("Have you ever tried to kill yourself?") and prefaced it with "In the past few weeks . . ." as they were not investigating lifetime suicidality. A response of 'no' was scored as 0 and a response of 'yes' was scored as 1; each item was summed, generating an overall score for suicidality on a scale ranging from 0 to 4, with higher scores indicating greater levels of suicidal ideation.
Beck Depression Inventory-II (BDI-II)	The BDI-II is a tool for assessing depressive symptoms. There are no specific scores to categorise depression severity, but it is suggested that 0 to 13 is minimal symptoms, 14 to 19 is mild depression, 20 to 28 is moderate depression, and severe depression is 29 to 63.
Body Image Scale (BIS)	The BIS is used to measure body satisfaction. The scale consists of 30 body features, which the person rates on a 5-point scale. Each of the 30 items falls into one of 3 basic groups based on its relative importance as a gender-defining body feature: primary sex characteristics, secondary sex characteristics, and neutral body characteristics. A higher score indicates more dissatisfaction.
Bone mineral apparent density (BMAD)	BMAD is a size adjusted value of bone mineral density (BMD) incorporating bone size measurements using UK norms in growing adolescents.
Center for Epidemiologic Studies Depression scale (CESD-R)	The CESD-R is a valid, widely used tool to access depressive symptoms. The CESD-R asks about how frequently a person has felt or behaved in a certain way; with 20 questions scored from 0 score is calculated as a sum of 20 questions, ranging from 0 ("not at all or less than one day") to 3 ("5–7 days" and/or "nearly every day for 2 weeks"). Total score ranges from 0 to 60, with higher scores indicating more depressive symptoms.
Cisgender	Cisgender is a term for someone whose gender identity matches their birth-registered sex.
Family APGAR (Adaptability, Partnership, Growth, Affection and Resolve) test	The Family APGAR test is a 5-item questionnaire, with higher scores indicating better family functioning. The authors reported the following interpretation of the score: functional, 17-20 points; mildly dysfunctional, 16-13 points; moderately dysfunctional, 12-10 point; severely dysfunctional, <9 points.
Gender	The roles, behaviours, activities, attributes and opportunities that any society considers appropriate for girls and boys, and women and men.
Gender dysphoria	Discomfort or distress that is caused by a discrepancy between a person's gender identity (how they see themselves regarding their gender) and that person's sex assigned at birth (and the associated gender role, and/or primary and secondary sex characteristics).

General Well-Being Scale (GWBS) of the Pediatric Quality of Life Inventory score	The GWBS of the Pediatric Quality of Life Inventory uses uses a 5-point response scale, contains seven items, and measures two dimensions: general wellbeing (6 items) and general health (1 item). Each item is scored from 0 to 4, and the total score is linearly transformed to a 0 to 100 scale. High scores reflect fewer perceived problems and greater well-being.
GnRH analogue	GnRH analogues competitively block GnRH receptors to prevent the spontaneous release of two gonadotropin hormones, Follicular Stimulating Hormone (FSH) and Luteinising Hormone (LH) from the pituitary gland. The reduction in LH and FSH secretion reduces oestradiol secretion from the ovaries in those whose sex assigned at birth was female and testosterone secretion from the testes in those whose sex assigned at birth was male.
Patient Health Questionnaire Modified for Teens score (PHQ 9_Modified for Teens)	The PHQ 9_Modified for Teens is a validated tool to assess depression, dysthymia and suicide risk. The tool consists of 9 questions scored from 0 to 3 (total score 0 to 27), plus an additional 4 questions that are not scored. A score of 0 to 4 suggests no or minimal depressive symptoms, 5 to 9 mild, 10-14 moderate, 15-19 moderate and 20-27 severe symptoms.
Quick Inventory of Depressive Symptoms (QIDS)	Both the clinician- and self-reported QIDS are validated tools to assess depressive symptoms. The tool consists of 16 items, with the highest score for 9 items (sleep, weight, psychomotor changes, depressed mood, decreased interest, fatigue, guilt, concentration, and suicidal ideation) are added to give a total score ranging from 0 to 27. A score of 0 to 5 is suggestive of no depressive symptoms, 6 to 10 mild symptoms, 11 to 15 moderate symptoms, 16-20 severe symptoms and 21 to 27 very severe symptoms.
Quality of Life Enjoyment and Satisfaction Questionnaire (QLES-Q-SF)	QLES-Q-SF is a validated questionnaire, consisting of 15 questions that rate quality of life on a scale of 1 (poor) to 5 (very good).
Screen for Child Anxiety Related Emotional Disorders (SCARED) questionnaire	SCARED is a validated, 41-point questionnaire, with each item scored 0 to 2. A total score of 25 or more is suggestive of anxiety disorder, with scores above 30 being more specific. Certain scores for specific questions may indicate the presence of other anxiety-related disorders: A score of 7 or more in questions related to panic disorder or significant somatic symptoms may indicate the presence of these. A score of 9 or more in questions related to generalised anxiety disorder may indicate the presence of this. A score of 5 or more in questions related to separation anxiety may indicate the presence of this. A score of 8 or more in questions related to social anxiety disorder may indicate the presence of this. A score of 3 or more in questions related to significant school avoidance may indicate the presence of this.
State-Trait Anxiety Inventory (STAI) score	STAI is a validated and commonly used measure of state anxiety (current state of anxiety) and trait anxiety (general state of calmness, confidence and security). It has 40 items, the first 20 covering state anxiety, the second 20 covering trait anxiety. STAI

	can be used in clinical settings to diagnose anxiety and to distinguish it from depressive illness. Each subtest (state and trait) is scored between 20 and 80, with higher scores indicating greater anxiety. There is no published minimal clinically meaningful difference (MCID) for STAI or thresholds for anxiety severity.
Strengths and Difficulties Questionnaire (SDQ, Spanish version	The SDQ, Spanish version includes 25-items covering emotional symptoms, conduct problems, hyperactivity/ inattention, peer relationship problems and prosocial behaviour. The authors state that a score of more than 20 is considered indicative of risk of having a disorder (normal: 0-15; borderline: 16-19, abnormal: 20-40).
Tanner stage	Tanner staging is a scale of physical development.
Transgender (including transmale and transfemale)	Transgender is a term for someone whose gender identity is not congruent with their birth-registered sex. A transfemale is a person who identifies as female and a transmale is a person who identifies as male.
Utrecht Gender Dysphoria Scale (UGDS)	The UGDS is a validated screening tool for both adolescents and adults to assess gender dysphoria. It consists of 12 items, to be answered on a 1- to 5-point scale, resulting in a sum score between 12 and 60. Higher scores indicate higher levels of gender dysphoria.

References

Included studies

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DOC. 69-11

DEFENDANT'S EXHIBIT 11

Socialstyrelsen
THE NATIONAL BOARD OF HEALTH AND WELFARE

Care of children and adolescents with gender dysphoria

Summary

Summary

The National Board of Health and Welfare (NBHW) has been commissioned by the Swedish government to update the national guidelines on care of children and adolescents with gender dysphoria, first published in 2015 [1]. Guidelines chapters are updated stepwise and this report contains revised guidance on psychosocial support and diagnostic assessment, and on puberty suppressing treatment with GnRH-analogues and gender-affirming hormonal treatment. This report thus replaces the corresponding chapters in the publication from 2015. Remaining chapters and the updated guidelines as a whole will be published later in 2022. In response to comments received during external review, two new chapters have been added, named *New recommendations on hormonal treatment – their reasons and consequences and Non-binary gender identity – current knowledge and a need for clarification*. Another difference compared to the guidelines from 2015 [1] is that the term "gender incongruence" is used alongside the term "gender dysphoria". For explanations of terms and abbreviations, see Appendix 2. For a description of the scientific evidence and clinical experience underlying the recommendations and the work process, see Appendices 3 and 4.

The guidelines apply to children and adolescents, i.e. people under 18 years of age. In the medical text sections, the term children (barn) refers to persons who have not yet entered puberty, while the term adolescents (ungdomar) refers to people whose puberty has started. In the text sections relating to juridical regulations, only the term children (barn) is used and denotes people younger than 18 years of age. Finally, the term "young people" (unga) is sometimes used in text sections addressing both children and adolescents.

Introductory comment

The summary that follows and the introductory chapter describe that the updated recommendations for puberty suppression with GnRH-analogues and gender-affirming hormonal treatment have become more restrictive compared to 2015, and the reasons that they have changed. The new recommendations entail that a larger

proportion than before, among adolescents with gender incongruence referred for diagnostic assessment of gender dysphoria, will need to be offered other care than hormonal treatments. Questions on how to ensure that all young people suffering from gender dysphoria be taken seriously and confirmed in their gender identity, well received and offered adequate care are becoming increasingly relevant, and will need to be answered during the ongoing restructuring of certain care for gender dysphoria into three national specialised medical care services (NBHW decision in December 2020). The care for children, adolescents and adults with gender dysphoria in these three national specialised units aims to improve equality in care, coordination and dialogue, and may enhance the implementation of national guidelines.

Recommendations and criteria for hormonal treatment

For adolescents with gender incongruence, the NBHW deems that the risks of puberty suppressing treatment with GnRH-analogues and gender-affirming hormonal treatment currently outweigh the possible benefits, and that the treatments should be offered only in exceptional cases. This judgement is based mainly on three factors: the continued lack of reliable scientific evidence concerning the efficacy and the safety of both treatments [2], the new knowledge that detransition occurs among young adults [3], and the uncertainty that follows from the yet unexplained increase in the number of care seekers, an increase particularly large among adolescents registered as females at birth [4].

A systematic review published in 2022 by the Swedish Agency for Health Technology Assessment and Assessment of Social Services [2] shows that the state of knowledge largely remains unchanged compared to 2015. High quality trials such as RCTs are still lacking and the evidence on treatment efficacy and safety is still insufficient and inconclusive for all reported outcomes. Further, it is not possible to determine how common it is for adolescents who undergo gender-affirming treatment to later change their perception of their gender identity or interrupt an ongoing treatment. An important difference compared to 2015 however, is that the occurrence of

detransition among young adults is now documented [3], meaning that the uncertain evidence that indicates a low prevalence of treatment interruptions or any aspects of regret is no longer unchallenged. Although the prevalence of detransition is still unknown, the knowledge that it occurs and that genderconfirming treatment thus may lead to a deteriorating of health and quality of life (i.e. harm), is important for the overall judgement and recommendation.

To minimize the risk that a young person with gender incongruence later will regret a gender-affirming treatment, the NBHW deems that the criteria for offering GnRH-analogue and gender-affirming hormones should link more closely to those used in the Dutch protocol, where the duration of gender incongruence over time is emphasized [5-7]. Accordingly, an early (childhood) onset of gender incongruence, persistence of gender incongruence until puberty and a marked psychological strain in response to pubertal development is among the recommended criteria. The publications that describe these criteria and the treatment outcomes when given in accordance [5, 6, 8] consitute the best available knowledge and should be used as guidance.

To ensure that new knowledge is gathered, the NBHW further deems that treatment with GnRH-analogues and sex hormones for young people should be provided within a research context, which does not necessarily imply the use of randomized controlled trials (RCTs). As in other healthcare areas where it is difficult to conduct RCTs while retaining sufficient internal validity, it is also important that other prospective study designs are considered for ethical review and that register studies are made possible. Until a research study is in place, the NBHW deems that treatment with GnRH-analogues and sex hormones may be given in exceptional cases, in accordance with the updated recommendations and criteria described in the guidelines. The complex multidisciplinary assessments will eventually be carried out in the three national units that are granted permission to provide highly specialized care services.

In accordance with the DSM-5, the recommendations in the guidelines from 2015 applied to young people with gender dysphoria in general, i.e. also young people with a non-binary gender identity. Another criterion within the Dutch protocol is that the child has had a binary ("cross-gender") gender identity since childhood [5, 6].

It has emerged during the review process, that the clinical experience and documentation of puberty-suppressing and hormonal treatment for young people with non-binary gender identity is lacking, and also that it is limited for adults. The NBHW still considers that gender dysphoria rather than gender identity should determine access to care and treatment. An urgent work thus remains, to clarify criteria under which adolescents with non-binary gender identity may be offered puberty-suppressing and gender-affirming hormonal treatment within a research framework.

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DEFENDANT'S EXHIBIT 12

STM038:00/2020

Recommendation of the Council for Choices in Health Care in Finland (PALKO / COHERE Finland)

Medical Treatment Methods for Dysphoria Related to Gender Variance In Minors

Concepts

Suppression treatment	Pubertal suppression with GnRH analogues (drugs that inhibit gonadotropin-releasing hormone activity) to halt the development of secondary sex characteristics of the biological sex.
Cisgender/Cis person	A person whose gender identity matches the sex determined at birth (identifies, and is satisfied with, the sex determined at birth and generally expresses his/her gender accordingly).
Other gender identity	A person who does not identify as a man or a woman, but rather somewhere along the continuum or outside of it; genderless, nonbinary, or multigendered.
Transgender	A person whose gender identity differs from the legal and biological sex determined at birth but instead aligns with the opposite sex.

STM038:00/2020

Content

1. Basis for Preparing These Recommendations

As the number of patients, including minors, referred to the Helsinki University Hospital (HUS) and the Tampere University Hospital (TAYS) multidisciplinary outpatient clinics for assessment and treatment of gender dysphoria has increased, PALKO (Council for Choices in Healthcare in Finland / COHERE Finland) decided to prepare recommendations for medical treatments of gender dysphoria, i.e., distress which is associated with a minor's gender variance and impairs function. Gender variance refers to a spectrum of gender experience anywhere on the male-female identity continuum or outside it, and is not exclusively confined to the dichotomized male/female conception of gender. Not all patients with gender variance experience significant suffering or functional impairments, and not all seek medical treatment.

These recommendations are based on the legislation in force at the time of the adoption of the recommendation, the available research evidence, and the clinical experience of multidisciplinary teams with expertise in gender dysphoria assessment and treatment at HUS and TAYS. The knowledge base supporting these recommendations is detailed in a separate Preparatory Memorandum and appendices and includes a description of planning and implementation of medical treatments, a literature review of medical treatments, an extensive ethical analysis, and feedback following meetings with patients and the advocacy groups who represent them.

Finnish legislation defines the requirements for the legal gender recognition of transsexuals (Act on Legal Recognition of the Gender of Transsexuals (Trans Act) 536/2002). The detailed requirements for providing the assessment and treatment to enable legal gender recognition are spelled out further in a Decree of the Ministry of Social Affairs and Health (1053/2002). The Trans Act and the related Decree apply to adults. For those who are not of legal age, there are no laws governing the provision and needs of transgender healthcare; however, these are subject to the Health Care Act of Finland (1326/2010), in particular section 7 (criteria for integrated care), section 7a (criteria for treatment options), section 8 (evidence-based, high quality, safe and appropriate care) and section 10 (rationale for centralization); and also to the Constitution of Finland (731/1999)'s section 6 on equality and section 19 on the right to adequate social and healthcare services. Finland's Act on the Status and Rights of Patients, (785/1992), and especially sections 5, 6, and 7, are also relevant.

2. Recommendations' Target Population

These recommendations apply to minors suffering from dysphoria related to gender variance who are seeking a consultation regarding an evaluation of medical examination and treatment needs; the children and adolescents may identify with the opposite sex (transgender), or may identify as genderless, non-binary, or anywhere along or outside the male/female gender identity continuum (other gender).

3. Procedures Assessed

These recommendations focus on medical treatment procedures that aim to decrease suffering and functional impairment of gender-dysphoric minors.

4. Current Care

Cross-sex identification in childhood, even in extreme cases, generally disappears during puberty. However, in some cases, it persists or even intensifies. Gender dysphoria may also emerge or intensify at the onset of puberty. There is considerable variation in the timing of the onset of puberty in both sexes. The first-line treatment for gender dysphoria is psychosocial support and, as necessary, psychotherapy and treatment of possible comorbid psychiatric disorders.

Consultation appointments (for parents / caregivers) regarding pre-pubescent children's cross-sex identification or gender dysphoria are provided by the research group on the gender identity of minors at TAYS or HUS. However, ongoing support or other treatment of psychiatric disorders are provided through the local municipal services.

In clear cases of pre-pubertal onset of gender dysphoria that intensified during puberty, a referral can be made for an assessment by the research group at TAYS or HUS regarding the appropriateness for puberty suppression. If no contraindications to early intervention are identified, pubertal suppression with GnRH analogues (to suppress the effect of gonadotropin-releasing hormone) may be considered to prevent further development of secondary sex characteristics of the biological sex.

Adolescents who have already undergone puberty, whose gender dysphoria occurs in the absence of co-occurring symptoms requiring psychiatric treatment, and whose experience of transgender identity failed to resolve following a period of reflection, can be referred for assessment by the research group on the gender identity of minors at TAYS or HUS. Hormone therapy (testosterone/estrogen and anti-androgen) can be started after the diagnostic evaluations, but no earlier than age 16. Additionally, patients under 18 receive three to six months of GnRH analogue treatment prior to the initiation of cross-sex hormones in order to suppress the hormonal activity of the gonads. No gender confirmation surgeries are performed on minors.

5. Risks, Benefits and Uncertainty

The literature review identified two studies with the total of 271 persons diagnosed with childhood-onset gender identity disorder and associated gender or body dysphoria that intensified after the onset of puberty (Preparatory Memorandum Appendix 1, Tables 15 and 16, pages 46-48).

In a smaller study of 70 adolescents, puberty was suppressed with the GnRH analogue at the average age of 14.8 (12-18 years) and puberty blockade continued for an average of 2 years. During the treatment period, the adolescents' mood improved, and the risk of behavioral disorders diminished, but gender dysphoria itself did not diminish, and there were no changes in body image. In a larger study consisting of 201 adolescents, 101 patients with the average age of 15.5 (12-18 years) started an 18-month psychological supportive intervention, and, additionally at six months, pubertal development was suppressed by starting GnRH analogue treatment. The other cohort of 100 only received psychological supportive intervention for 18 months. In both groups, statistically significant increases in global psychosocial functioning were found at 12 and 18 months; among those having received psychological intervention alone, the improvement in global functioning was already significant at the 6-month mark. Both studies lack long-term treatment follow-up into adulthood.

A recent Finnish study, published after the completion of this literature review, reported on the effect of initiating cross-sex hormone therapy on functioning, progression of developmental tasks of adolescence, and psychiatric symptoms. This study found that during cross-sex hormone therapy, problems in these areas did not decrease.

Potential risks of GnRH therapy include disruption in bone mineralization and the as yet unknown effects on the central nervous system. In trans girls, early pubertal suppression inhibits penile growth, requiring the use of alternative sources of tissue grafts for a potential future vaginoplasty. The effect of pubertal suppression and cross-sex hormones on fertility is not yet known.

6. Ethical Assessment

Although the ethics analysis did not systematically address the issues pertaining to children and adolescents, they have been discussed in several areas in the related documents (Preparatory Memorandum pages 52-62; Appendix 5).

According to the Health Care Act (section 8), healthcare services must be based on evidence and recognized treatment and operational practices. As far as minors are concerned, there are no medical treatment that can be considered evidence-based. At the same time, the numbers of minors developing gender dysphoria has increased. In this situation, it is vital to assure that children and young people are able to talk about their feelings, and that their feelings are acknowledged. The opportunity to reflect on one's experience should be easily accessible through the local health system (i.e., school or student health care, primary care). A young

person's feelings should not be interpreted as immediately requiring specialized medical examinations or treatments.

In cases of children and adolescents, ethical issues are concerned with the natural process of adolescent identity development, and the possibility that medical interventions may interfere with this process. It has been suggested that hormone therapy (e.g., pubertal suppression) alters the course of gender identity development; i.e., it may consolidate a gender identity that would have otherwise changed in some of the treated adolescents. The reliability of the existing studies with no control groups is highly uncertain, and because of this uncertainty, no decisions should be made that can permanently alter a still-maturing minor's mental and physical development.

From the point of view of patient advocacy groups, halting puberty is providing young people with a period of reflection, rather than consolidating their gender identity. This is based on the premise that halting the development of one's permanent sex characteristics will improve the minor's social interactions, while allowing more time for diagnostic evaluations. Additionally, patient advocacy groups assert that early intervention with hormonal treatments will lead to improved outcomes for the patients who do eventually pursue gender reassignment. Professionals, for their part, consider it important to ensure that irreversible interventions, which may also have significant adverse effects, both physical and mental, are only performed on individuals who are able to understand the permanence of the changes and the potential for harm, and who are unlikely to regret such interventions. It is not known how the hormonal suppression of puberty affects young people's judgement and decision-making.

The Act on the Status and Rights of Patients (1992/785) states that the patient shall be provided with information about his/her state of health, the significance of the treatment, various alternative forms of treatment and their effects, and about other factors concerning treatment that have an effect on treatment decision-making. In a situation where a minor's identification with the opposite sex causes long-term and severe dysphoria, it is important to make sure that he/she understands the realistic potential of gender reassignment treatments to alter secondary sex characteristics, the reality of a lifelong commitment to medical therapy, the permanence of the effects, and the possible physical and mental adverse effects of the treatments. Although patients may experience regret, after reassignment treatments, there is no going back to the non-reassigned body and its normal functions. Brain development continues until early adulthood – about age 25, which also affects young people's ability to assess the consequences of their decisions on their own future selves for rest of their lives.

A lack of recognition of comorbid psychiatric disorders common among gender-dysphoric adolescents can also be detrimental. Since reduction of psychiatric symptoms cannot be achieved with hormonal and surgical interventions, it is not a valid justification for gender reassignment. A young person's identity and personality development must be stable so that they can genuinely face and discuss their gender dysphoria, the significance of their own feelings, and the need for various treatment options.

For children and adolescents, these factors are key reasons for postponing any interventions until adulthood.

7. Conclusions

The first-line intervention for gender variance during childhood and adolescent years is psychosocial support and, as necessary, gender-explorative therapy and treatment for comorbid psychiatric disorders. Uncertainty related to gender identity should be dealt with according to the severity of symptoms and the need for treatment and should be handled at the school / student health care, primary health care at the local level, or in specialty care.

In adolescents, psychiatric disorders and developmental difficulties may predispose a young person to the onset of gender dysphoria. These young people should receive treatment for their mental and behavioral health issues, and their mental health must be stable prior to the determination of their gender identity.

Clinical experience reveals that autistic spectrum disorders (ASD) are overrepresented among adolescents suffering from gender dysphoria; even if such adolescents are presenting with gender dysphoria, rehabilitative interventions for ASD must be properly addressed.

In light of available evidence, gender reassignment of minors is an experimental practice. Based on studies examining gender identity in minors, hormonal interventions may be considered before reaching adulthood in those with firmly established transgender identities, but it must be done with a great deal of caution, and no irreversible treatment should be initiated. Information about the potential harms of hormone therapies is accumulating slowly and is not systematically reported. It is critical to obtain information on the benefits and risks of these treatments in rigorous research settings.

At a minimum, a consultation for a pre- pubescent child at the specialist setting at the TAYS includes an extensive assessment appointment costing EUR 369. If necessary, a day-long outpatient consultation can be arranged, costing EUR 1,408.

The consultation and assessment process for minors at the specialist settings of TAYS or HUS costs EUR 4,300. If it is determined that this process would be untimely, the minimum cost is EUR 640. An initial assessment / consultation by phone costs EUR 100.

The planning and monitoring costs for pubertal suppression are EUR 2,000 for the first year, and EUR 1,200 for subsequent years. The costs for the planning and monitoring of hormone treatments are a minimum of EUR 400 per year.

These costs do not take into account the additional costs of psychosocial support provided in the local level, the possible need for psychiatric treatment, or hormone treatment medication costs.

8. Summary of the Recommendations

PALKO / COHERE maintains the following:

1. For the treatment of gender dysphoria due to variations in gender identity in minors, psychosocial support should be provided in school and student healthcare and in primary healthcare, and there must be sufficient competency to provide such support.
2. Consultation with a child or youth psychiatrist and the necessary psychiatric treatment and psychotherapy should be arranged locally according to the level of treatment needed.
3. If a child or young person experiencing gender-related anxiety has other simultaneous psychiatric symptoms requiring specialised medical care, treatment according to the nature and severity of the disorder must be arranged within the services of their own region, as no conclusions can be drawn on the stability of gender identity during the period of disorder caused by a psychiatric illness with symptoms that hamper development.

PALKO / COHERE considers that the consultation, periods of assessment, and treatments by the research group on the gender identity of minors at TAYS or HUS must be carried out according to the following principles:

1. Children who have not started puberty and are experiencing persistent, severe anxiety related to gender conflict and/or identification as the other sex may be sent for a consultation visit to the research group on the gender identity of minors at TAYS or HUS. Any need for support beyond the consultation visit or need for other psychiatric treatment should be addressed by local services according to the nature and severity of the problem.

2. If a child is diagnosed prior to the onset of puberty with a persistent experience of identifying as the other sex and shows symptoms of gender-related anxiety, which increases in severity in puberty, the child can be guided at the onset of puberty to the research group on the gender identity of minors at TAYS or HUS for an assessment of the need for treatment to suppress puberty. Based on these assessments, puberty suppression treatment may be initiated on a case-by-case basis after careful consideration and appropriate diagnostic examinations if the medical indications for the treatment are present and there are no contraindications. Therapeutic amenorrhea, i.e. prevention of menstruation, is also medically possible.

3. A young person who has already undergone puberty can be sent to the research clinic on the gender identity of minors at TAYS or HUS for extensive gender identity studies if the variation in gender identity and related dysphoria do not reflect the temporary search for identity typical of the development stage of adolescence and do not subside once the young person has had the opportunity to reflect on their identity but rather their identity and personality development appear to be stable.

4. Based on thorough, case-by-case consideration, the initiation of hormonal interventions that alter sex characteristics may be considered before the person is 18 years of age only if it can be ascertained that their identity as the other sex is of a permanent nature and causes severe dysphoria. In addition, it must be confirmed that the young person is able to understand the significance of irreversible treatments and the

benefits and disadvantages associated with lifelong hormone therapy, and that no contraindications are present.

5. If a young person experiencing gender-related anxiety has experienced or is simultaneously experiencing psychiatric symptoms requiring specialized medical care, a gender identity assessment may be considered if the need for it continues after the other psychiatric symptoms have ceased and adolescent development is progressing normally. In this case, a young person can be sent by the specialized youth psychiatric care in their region for an extensive gender identity study by the TAYS or HUS research group on the gender identity of minors, which will begin the diagnostic studies. Based on the results of the studies, the need for and timeliness of medically justified treatments will be assessed individually.

Surgical treatments are not part of the treatment methods for dysphoria caused by gender-related conflicts in minors. The initiation and monitoring of hormonal treatments must be centralized at the research clinics on gender identity at HUS and TAYS.

9. Additional Evidence Gathering and Monitoring the Effectiveness of Recommendations

Moving forward, the following information must be obtained about the patients diagnosed and receiving treatments in Finland before re-evaluating these recommendations:

- Number of new patient referrals
- Number of patients starting the assessment period, and numbers of new transgender (F64.0) vs “other gender” (F64.8) diagnoses
- Whether the diagnosis remains stable or changes during the assessment phase
- Number of patients discontinuing the assessment period and the reasons for the discontinuation
- Adverse effects of treatments (especially long-term effects and effect on fertility)
- Number of patients regretting hormone therapy
- Analysis of the effects of the assessment and the treatment period on gender dysphoria outcomes, as measured by the Gender Congruence and Life Satisfaction Scale (GCLS)
- Analysis of the effects of the assessment and the treatment period on functional capacity and quality of life
- The prevalence of co-occurring psychiatric diagnoses (especially neurodevelopmental diagnoses F80-F90) among those diagnosed with / seeking treatment for gender dysphoria, and whether the presence of these co-occurring diagnoses impacts the ability to achieve the desired outcome (e.g. decreased dysphoria) in the assessment or the treatment phase.
- Whether the assessment and treatment periods lead to a reduction of suicide attempts
- Whether the assessment and treatment periods lead to a reduction in depression and distress

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10. Appendices

Preparatory Memorandum, with Appendices 1-5.

DOC. 69-13

DEFENDANT'S EXHIBIT 13

ACADÉMIE NATIONALE DE MÉDECINE

Medicine and gender transidentity in children and adolescents

Press release of the French National Academy of Medicine[1]

February 25, 2022

Gender transidentity is the strong sense, for more than 6 months, of identification with a gender different from that assigned at birth. This feeling can cause a significant and prolonged suffering, which can lead to a risk of suicide (a). No genetic predisposition has been found.

The recognition of this disharmony is not new, but a very strong increase in the demand for physicians for this reason has been observed (1, 2) in North America, then in the countries of northern Europe and, more recently, in France, particularly in children and adolescents. For example, a recent study within a dozen high schools in Pittsburgh revealed a prevalence that was much higher than previously estimated in the United States (3): 10% of students declared themselves to be transgender or non-binary or of uncertain gender (b). In 2003, the Royal Children's Hospital in Melbourne had diagnosed gender dysphoria in only one child, while today it treats nearly 200.

Whatever the mechanisms involved in the adolescent – overuse of social networks, greater social acceptability, or example in the entourage - this epidemic-like phenomenon results in the appearance of cases or even clusters in the immediate surroundings (4). This primarily social problem is based, in part, on a questioning of an excessively dichotomous vision of gender identity by some young people.

The medical demand is accompanied by an increasing supply of care, in the form of consultations or treatment in specialized clinics, because of the distress it causes rather than a mental illness per se. Many medical specialties in the field of pediatrics are concerned. First of all psychiatry, then, if the transidentity appears real or if the malaise persists, endocrinology gynecology and finally surgery are concerned.

However, a great medical caution must be taken in children and adolescents, given the vulnerability, particularly psychological, of this population and the many undesirable effects, and even serious complications, that some of the available therapies can cause. In this respect, it is important to recall the recent decision (May 2021) of the Karolinska University Hospital in Stockholm to ban the use of hormone blockers.

Although, in France, the use of hormone blockers or hormones of the opposite sex is possible with parental authorization at any age, the greatest reserve is required in their use, given the

[1] This Press release, adopted by the French Academy of Medicine on February 25, 2022, by 59 votes for, 20 against and 13 abstentions, was approved, in its revised version, by the Board of Directors on February 28, 2022.

side effects such as impact on growth, bone fragility, risk of sterility, emotional and intellectual consequences and, for girls, symptoms reminiscent of menopause.

As for surgical treatments, in particular mastectomy, which is authorized in France from the age of 14, and those involving the external genitalia (vulva, penis), their irreversible nature must be emphasized.

Therefore, faced with a request for care for this reason, it is essential to provide, first of all, a medical and psychological support to these children or adolescents, but also to their parents, especially since there is no test to distinguish a "structural" gender dysphoria from transient dysphoria in adolescence. Moreover, the risk of over-diagnosis is real, as shown by the increasing number of transgender young adults wishing to "detransition". It is therefore advisable to extend as much as possible the psychological support phase.

The National academy of medicine draws the attention of the medical community to the increasing demand for care in the context of gender transidentity in children and adolescents and recommends:

- A psychological support as long as possible for children and adolescents expressing a desire to transition and their parents;

- In the event of a persistent desire for transition, a careful decision about medical treatment with hormone blockers or hormones of the opposite sex within the framework of Multi-disciplinary Consultation Meetings;

- The introduction of an appropriate clinical training in medical studies to inform and guide young people and their families;

- The promotion of clinical and biological as well as ethical research, which is still too rare in France on this subject.

- The vigilance of parents in response to their children's questions on transidentity or their malaise, underlining the addictive character of excessive consultation of social networks which is both harmful to the psychological development of young people and responsible, for a very important part, of the growing sense of gender incongruence.

Glossary:

a. Gender dysphoria is the medical term used to describe the distress resulting from the incongruence between the felt gender and the gender assigned at birth (5).

b. A non-binary person is a person whose gender identity is neither male nor female.

c. A transgender person adopts the appearance and lifestyle of a sex different from that assigned at birth. Whether born male or female, the transgender persons changes, or even rejects, their original gender identity. The sex registered on his or her civil status does not correspond to the appearance he or she sends back. This does not necessarily lead to a therapeutic approach.

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DEFENDANT'S EXHIBIT 14

The Royal Australian & New Zealand College of Psychiatrists

Your Health in Mind

Recognising and addressing the mental health needs of people experiencing Gender Dysphoria / Gender Incongruence

August 2021

Position statement 103

Summary

This position statement developed by the Royal Australian and New Zealand College of Psychiatrists (RANZCP) provides an overview of Gender Dysphoria and highlights the importance of respecting an individual's gender identity.

Purpose

This position statement developed by the Royal Australian and New Zealand College of Psychiatrists (RANZCP) provides an overview of Gender Dysphoria and highlights the importance of respecting an individual's gender identity. This statement offers insight into the key issues relevant to the mental health needs of people experiencing Gender Dysphoria and guidance is provided on how psychiatrists and mental health services can support individuals constructively. People experiencing Gender Dysphoria may experience a disproportionate level of mental illness and psychological distress. This position statement makes recommendations for enhancing the mental health sector's responsiveness to these needs.

Key messages

- Gender Dysphoria is associated with significant distress.
- There are polarised views and mixed evidence regarding treatment options for people presenting with gender identity concerns, especially children and young people. It is important to understand the different factors, complexities, theories, and research relating to Gender Dysphoria.
- It is important that there is adequate, person-centred care, for the mental health needs of people experiencing Gender Dysphoria.
- Psychiatrists play a crucial role in caring for the mental health needs of people experiencing Gender Dysphoria.
- Psychiatrists should act in a manner which is supportive, ethical, and non-judgmental.
- Comprehensive assessment is crucial. Assessment and treatment should be evidence-informed, fully explore the patient's gender identity, the context in which this has arisen, other features of mental illness

and a thorough assessment of personal and family history. This should lead to a formulation. The assessment will be always responsive to and supportive of the person's needs.
- Psychiatrists must have regard to the relevant laws and professional standards in relation to assessing capacity and obtaining consent, including the RANZCP Code of Ethics.
- Gender Dysphoria is an emerging field of research and, at present, there is a paucity of evidence. Better evidence in relation to outcomes, especially for children and adolescents is required.

Definition

Gender Dysphoria, as defined in the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5), refers to marked incongruence between one's experienced or expressed gender and one's assigned gender, associated with clinically significant distress or impairment in functioning.[1] Gender Incongruence is defined in the International Classification of Diseases 11th revision (ICD-11) as is 'a marked and persistent incongruence between an individual's experienced gender and the assigned sex'.[2]

Terminology

The RANZCP acknowledges the importance of using appropriate terminology when discussing issues of sexual, sex and gender identity.[3] Inclusive language engenders respect and promotes visibility for important issues, and this is integral to improving the health of LGBTIQ+ people.[4] The key terminology section below provides an overview of some key terms used in Australia and New Zealand.

It is important to be mindful of the importance of individual terminology preferences when talking about someone's sexual orientation or gender identity. Using the individual's preferred terms, especially pronouns, is very important for trans, gender diverse and non-binary people. Healthcare providers should not refer to someone using terms or pronouns that are against the individual's wishes. For example, an individual may wish to be referred to by the pronouns 'they and them' so as to avoid the gendered pronouns 'she' and 'he', and this should be respected. It is important to also be aware of the rapidity with which language and terminology can change and develop in this area, and to consider additional research or inquiry with relevant organisations as appropriate (please refer to the list of resources below for more information).

Key Terminology

- **Transphobia** encompasses a range of negative attitudes and feelings such as hatred, disgust, contempt, prejudice and fear towards people who are gender variant.
- **Trans,** or **TGD (trans and gender diverse)** are commonly used to describe a broad range of non-conforming gender identities or expressions including **transgender, agender** (having no gender), **bigender** (identifying as both a woman and a man), or **non-binary** (neither woman nor man). Some people may describe themselves as **MTF/M2F** (male-to-female), **FTM/F2M** (female-to-male), **AFAB** (assigned female at birth) or **AMAB** (assigned male at birth). The term **genderqueer** is used to refer to gender identity that does not conform to sociocultural norms. **Gender fluid** is used to refer to gender identity which shifts over time.
- For **TGDNB** (trans, gender diverse and non-binary) people, preferred pronouns may include 'he/him', 'she/her', 'they/them' or neopronouns like 'zi/zim'.
- Some Aboriginal and Torres Strait Islander peoples use the term **sistergirl** to refer to sex assigned at birth males who live partly or fully as women and **brotherboy** to refer to sex assigned at birth females who live partly or fully as men.[3]
- **Takatāpui** as a self-descriptor is often used by Māori to describe non-binary gender and/or sexual identity. Specific meaning can vary depending on context.[5] There are several Māori words for transgender people, including whakawahine (trans woman) and **whakatāne** (trans man).[6]

- In Pacific Island cultures, there are a number of gender-diverse identities including the Samoan **fa'afafine** and Tongan **fakaleiti**.[7]

Background

People experiencing Gender Dysphoria should be supported by mental health services to navigate their experience in a constructive way. Gender Dysphoria can emerge in a variety of ways. Each case should be assessed by a mental health professional, which will frequently be a psychiatrist, with the person at the centre of care. It is important the psychological state and context in which Gender Dysphoria has arisen is explored to assess the most appropriate treatment.

The views about whether psychiatric diagnosis is warranted for people who experience incongruence of gender identity are changing.[8] While 'Gender Dysphoria' is classified as a mental disorder in DSM-5, ICD-11 classifies the condition 'Gender Incongruence' not as a 'mental, behavioural and neurodevelopmental disorder' but as a 'condition related to sexual health'.[1, 2] ICD-11 has undergone significant revisions to ensure that disorders relating to sexuality and gender identity reflect contemporary evidence while appropriately distinguishing between health conditions and private behaviours.[9]

Gender Dysphoria continues to be widely debated across jurisdictions in Australia and New Zealand. The RANZCP has developed this position statement from the perspective of psychiatry.

Supporting people experiencing Gender Dysphoria/Gender Incongruence

There is evidence that people who experience incongruence between their gender identity and assigned gender have higher levels of mental illness than the general population.[10] In a retrospective study, Reisner et al (2015) found higher rates of depression, anxiety, suicidal ideation and self-harm in youth who identified as transgender.[11]

Data suggest that the number of people seeking help for gender identity issues has increased worldwide, with referrals to gender clinics increasing across age groups, including amongst children and adolescents.[12, 13] Clinics seeing young people have also reported an increasing preponderance of sex assigned at birth females among those seeking intervention and a co-occurrence of autism spectrum disorder and Gender Dysphoria. [14, 15]

Gender Dysphoria emerges in many different ways and is associated with significant distress for those who experience it. However, Gender Incongruence is not in and of itself pathological. There are polarised views and mixed evidence regarding treatment options for people presenting with gender identity concerns, especially children and young people.

The World Professional Association for Transgender Health (WPATH) uses the terminology "real life experience" defining it as "the act of fully adopting a new or evolving gender role or gender presentation in everyday life".[16] Real life experience allows transgender individuals who wish to permanently change their gender role, to transition from imagined experience to a lived experience. This experience can differ between individuals, for some the experience is liberating, whereas others can experience disappointment due to transition not living up to the desired expectation.[17]

A major challenge for clinicians working with children and adolescents who present for treatment of Gender Dysphoria is the impact of polarised socio-political discourse on clinical assessment and decision-making. Polarised views can be unhelpful and can make the task of clinicians assisting young people presenting with complex presentations more difficult.[18] Whilst these debates must be acknowledged, the most important goal currently is to ensure that there is adequate care available to meet the mental health needs of people experiencing Gender Dysphoria.

Role of psychiatrists

There are a number of guidelines and resources available which relate to Gender Dysphoria. [19-27] The RANZCP does not preference any specific guidelines. The RANZCP encourages psychiatrists to be aware there are multiple perspectives and views.

There is some evidence to suggest positive psychosocial outcomes for those who are supported in their gender identity.[28] However, evidence and professional opinion is divided as to whether an affirmative approach should be taken in relation to treatment of transgender children or whether other approaches are more appropriate.[24]

A gender affirmative approach endorses the belief system that children should be able to 'live in the gender that feels most real or comfortable to that child and to express that gender with freedom from restriction, aspersion, or rejection' therefore the child's statements regarding their gender identity should not be questioned, but instead accepted.[29] Affirmative approaches may include consideration of the need for medical treatments including gender affirming hormones, gonadotrophin releasing hormone analogues (GnRH) (in children and adolescents) and surgery. Approaches which don't include medical treatments may focus on utilising psychotherapy to aid individuals with Gender Dysphoria in exploring their gender identity, and aid alleviation of any co-existing mental health concerns identified in screening and assessment.[24]

The RANZCP endorses practice which supports and validates the identity, strength, and experience of the individual, recognising that all experiences of gender are equally healthy and valuable. In all cases, clinicians have a crucial role in empathetically supporting the individual and family/whānau assertions and lived experiences. The RANZCP acknowledges the dynamic changes in a child or adolescent's identity and brain development, appreciating the inherent complexities in the clinical care and assessment of the individual.

Mental health professionals should acknowledge the concerns of children, adolescents, and their families whilst not expressing any negative attitudes towards experiences of Gender Dysphoria. Acceptance, and alleviation of secrecy can provide relief to individuals experiencing Gender Dysphoria as well as their families.[24]

Psychiatric assessment and treatment should be both based on available evidence and allow for full exploration of the person's gender identity.[20] The RANZCP emphasises the importance of the psychiatrist's role to undertake thorough assessment and evidence-based treatment ideally as part of a multidisciplinary team, especially highlighting co-existing issues which may need addressing and treating. Psychiatric assessment and treatment must also occur in accordance with professional standards, and in a way which is person-centred, responsive to and supportive of the person's needs. Psychosocial support should be continuously offered and provided to people and their families before, during and after any treatment to maximise positive mental health outcomes.[20] If appropriate, psychiatrists can additionally facilitate the assessment of eligibility, preparation and referral for treatment.[24]

Mental health professionals including psychiatrists should maintain a collaborative and multidisciplinary approach to the treatment of Gender Dysphoria. Psychiatrists should discuss progress and obtain peer consultation from other professionals competent in the assessment and treatment of Gender Dysphoria, within both mental health and other medical disciplines.[24]

Health professionals should also be aware of ethical and medicolegal dilemmas in relation to medical and surgical treatment for people experiencing Gender Dysphoria. Psychiatrists should practise within the relevant laws and accepted professional standards in relation to assessing capacity and obtaining consent, including the RANZCP Code of Ethics.[30] Consent and authorisation for children and adolescents to commence GnRH and gender affirming hormones are subject to specific legislation in Australia and New Zealand. The legal position is rapidly changing, with the implications for policy and practice differing by jurisdiction. It is important that psychiatrists are aware of the policies and practices within the jurisdiction in which they work.

Given the complexity of these issues, it is essential that sufficient information is provided to people (and their family/whānau, or carer where relevant) to enable informed consent.[31] Further, evidence for clinical decisions about whether a child or adolescent is capable and competent to consent to treatment should be clearly recorded. In all cases, the risks and benefits of different treatments must be carefully assessed and balanced by the multidisciplinary team providing care and support to the person experiencing Gender Dysphoria.

Research on Gender Dysphoria is still emerging. At present, there is a paucity of quality evidence on the outcomes of those presenting with Gender Dysphoria. In particular, there is a need for better evidence in relation to outcomes for children and young people.[20] The RANZCP supports further research being undertaken into the long-term effects of medical and surgical affirming treatment in all age groups, including children and adolescents. Findings from the

Australian Trans20 longitudinal cohort study and Gender Identity Longitudinal Experience (GENTLE) cohort study are expected to improve our understanding.[32, 33] Such research is crucial in ensuring that individuals can safely access evidence-based therapies for Gender Dysphoria/Gender Incongruence as needed.[34, 35]

Recommendations

The RANZCP recommends the following actions to support the mental health needs of people experiencing Gender Dysphoria/Gender Incongruence:

- Psychiatrists should engage with people experiencing Gender Dysphoria in a way which is person-centred, non-judgmental and cares for their mental health needs.
- Assessment and treatment should be based on the best available evidence and fully explore the person's gender identity and the biopsychosocial context from which this has emerged.
- Health services should take steps to accommodate the needs and ensure the cultural safety of people experiencing Gender Dysphoria/Gender Incongruence.
- Further research should be supported and funded in relation to wellbeing and quality of life during and after medical and surgical interventions for Gender Dysphoria/Gender Incongruence.

Further reading

Royal Australian and New Zealand College of Psychiatrists Position Statement 83: Recognising and addressing the mental health needs of the LGBTIQ+ population

Responsible committee: Practice, Policy and Partnerships Committee

References ›

DOC. 69-15

DEFENDANT'S EXHIBIT 15

Neutral Citation Number: [2020] EWHC 3274 (Admin)

Case No: CO/60/2020

IN THE HIGH COURT OF JUSTICE
ADMINISTRATIVE COURT
DIVISIONAL COURT

Royal Courts of Justice
Strand, London, WC2A 2LL

Date: 01/12/2020

Before :

THE PRESIDENT OF THE QUEEN'S BENCH DIVISION
LORD JUSTICE LEWIS
MRS JUSTICE LIEVEN

- -

Between :

(1) QUINCY BELL
(2) MRS A

Claimants

and

THE TAVISTOCK AND PORTMAN NHS FOUNDATION TRUST

Defendant

NATIONAL HEALTH SERVICE COMMISSIONING BOARD (NHS ENGLAND)

Interested Party

(1) UNIVERSITY COLLEGE LONDON HOSPITALS NHS FOUNDATION TRUST
(2) LEEDS TEACHING HOSPITALS NHS TRUST
(3) TRANSGENDER TREND LTD

Interveners

Mr Jeremy Hyam QC and Mr Alasdair Henderson (instructed by **Sinclairslaw**) for the **Claimants**
Ms Fenella Morris QC and Ms Nicola Kohn (instructed by **DAC Beachcroft**) for the **Defendant**
The Interested Party did not appear and was not represented
Mr John McKendrick QC (instructed by **Hempsons**) for the **First and Second Interveners**
Mr Paul Skinner and Mr Aidan Wills (instructed by **Ai Law)** for the **Third Intervener**
Hearing dates: **7 and 8 October 2020**

Approved Judgment

I direct that pursuant to CPR PD 39A para 6.1 no official shorthand note shall be taken of this Judgment and that copies of this version as handed down may be treated as authentic.

.....

THE PRESIDENT OF THE QUEEN'S BENCH DIVISION
LORD JUSTICE LEWIS
MRS JUSTICE LIEVEN

Dame Victoria Sharp P., Lord Justice Lewis, Lieven J.

SECTION A: INTRODUCTION AND BACKGROUND

1. This is the judgment of the court.

2. This is a claim for judicial review of the practice of the defendant, the Tavistock and Portman NHS Foundation Trust, through its Gender Identity Development Service (GIDS) and the first and second Interveners (the Trusts) of prescribing puberty-suppressing drugs to persons under the age of 18 who experience gender dysphoria.

3. Gender dysphoria or GD is a condition where persons experience distress because of a mismatch between their perceived identity and their natal sex, that is, their sex at birth. Such persons have a strong desire to live according to their perceived identity rather than their natal sex.

4. Those with gender dysphoria may be referred to GIDS. GIDS may, in turn, refer them to one of two NHS Trusts (the first and second Interveners) whose clinicians may be prepared to undertake medical interventions in relation to those with gender dysphoria. We are concerned in this case with the administration of gonadotropin-releasing hormone agonists (GnRHa) which are hormone or puberty blocking drugs (also called PBs) to suppress the physical developments that would otherwise occur during puberty.

5. Puberty blocking drugs can in theory be, and have in practice been, prescribed for gender dysphoria through the services provided by the defendant to children as young as 10. It is the practice of the defendant, through GIDS, to require the informed consent of those children and young persons to whom such drugs are prescribed.

6. The issue at the heart of this claim is whether informed consent in the legal sense can be given by such children and young persons.

7. The claimants' case is that children and young persons under 18 are not competent to give consent to the administration of puberty blocking drugs. Further, they contend that the information given to those under 18 by the defendant is misleading and insufficient to ensure such children or young persons are able to give informed consent. They further contend that the absence of procedural safeguards, and the inadequacy of the information provided, results in an infringement of the rights of such children and young persons under Article 8 of the European Convention for the Protection of Human Rights and Fundamental Freedoms (the Convention).

8. In our view, it is appropriate to consider first, whether a child under 16, or a young person between 16 and 18, can give the requisite consent; and secondly, if, in principle, they can do so, whether the information provided by the defendant and the Trusts is adequate for achieving informed consent.

9. The court in this case is concerned with the legal requirements of the process of obtaining consent for the carrying out of medical treatment. In considering this issue the court has had to consider evidence on the use of PBs, their impact on the patients, both in the short and long term, and the evidence of the efficacy of their use. The court is not deciding on the benefits or disbenefits of treating children with GD with PBs, whether in the long or short term. The court has been given a great deal of evidence

about the nature of GD and the treatments that may or may not be appropriate. That is not a matter for us. The sole legal issue in the case is the circumstances in which a child or young person may be competent to give valid consent to treatment in law and the process by which consent to the treatment is obtained.

10. We have had placed before us written evidence from a wide variety of those engaged in issues surrounding GD and a number of individuals who have been treated or are still being treated with PBs.

11. On behalf of the defendant and the Trusts there are statements from Dr Polly Carmichael, Director of GIDS, Professor Gary Butler, Consultant in Paediatric Endocrinology at University College Hospital London, and Dr Nurus-Sabah Alvi, Consultant in Paediatric Endocrinology at Leeds General Infirmary and Clinical Lead for Endocrine Liaison Clinics of the GIDS, Leeds. These witnesses describe the process that the children and young people go through at GIDS and at the Trusts. The court has also had a wide range of evidence from a variety of people concerned with the treatment of those under 18 with PBs. We will refer to that evidence and its sources as appropriate below. Our references to a child or children will be to those under the age of 16, and to young person(s) to anyone under the age of 18, save where it is clear from the context that we are referring to anyone under the age of 18.

Gender Dysphoria

12. Gender dysphoria is defined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) which provides for one overarching diagnosis of gender dysphoria with separate specific criteria for children and for adolescents and adults:

> "In adolescents and adults gender dysphoria diagnosis involves a difference between one's experienced gender and assigned gender, and significant distress or problems functioning. It lasts at least six months and is shown by at least two of the following:
>
> 1. A marked incongruence between one's experienced / expressed gender and primary and / or secondary sex characteristics
>
> 2. A strong desire to be rid of one's primary and / or secondary sex characteristics
>
> 3. A strong desire for the primary and / or secondary sex characteristics of the other gender
>
> 4. A strong desire to be of the other gender
>
> 5. A strong desire to be treated as the other gender
>
> 6. A strong conviction that one has the typical feelings and reactions of the other gender.
>
> In children, gender dysphoria diagnosis involves at least six of the following and an associated significant distress or impairment in function, lasting at least six months:

1. A strong desire to be of the other gender or an insistence that one is the other gender

2. A strong preference for wearing clothes typical of the other gender

3. A strong preference for cross-gender roles in make-believe play or fantasy play

4. A strong preference for toys, games or activities stereotypically used or engaged in by the other gender

5. A strong preference for playmates of the other gender

6. A strong rejection of toys, games and activities typical of one's assigned gender

7. A strong dislike of one's sexual anatomy

8. A strong desire for the physical sex characteristics that match one's experienced gender."

Gender Identity Development Service (GIDS)

13. The defendant is an NHS Foundation Trust employing specialist staff including child psychologists, psychotherapists, psychiatrists, social workers, family therapists and nurses. Since 1989 it has provided a gender identity development service, a specialised service providing care to patients up to the age of 18 suffering from GD. GIDS is commissioned by the National Health Service Commissioning Board. The statutory mechanism is that under section 3B of the NHS Act 2006, the Secretary of State has the power to require NHS England to arrange services or facilities as may be prescribed by regulations. The Secretary of State has exercised that power (pursuant to Regulation 11 of the National Health Service Commissioning Board and Clinical Commissioning Groups (Responsibilities and Standing Rules) Regulations 2012/2296, which concerns specified services for rare and very rare conditions) that NHS England must arrange for the provision of services including, pursuant to para 56 of Schedule 4, a gender identity development service specifically for children and adolescents in addition to gender dysphoria services more generally (para 57).

14. Schedule 2, Part A of the NHS Standard Contract, pursuant to which GIDS is provided, sets out the Service Specification which establishes the context of the service, its aims and objectives and the manner in which it will be delivered. As set out in the Service Specification, the service is commissioned to provide specialist assessment, consultation and care including psychological support and physical treatments. The purpose of the treatment is *"to help reduce the distressing feelings of a mismatch between their natal (assigned) sex and their gender identity."* The service also provides support to family and carers of children and young persons so affected.

15. GIDS recognises three stages of physical intervention that may be appropriate in cases of GD. Stage 1 is the administration of GnRHa (one form of puberty blocker). This is clinically appropriate for children and young people who have reached Tanner Stage 2

of puberty and above. Tanner Stage 2 marks the beginning of the physical development of puberty. In natal girls this is the start of development of the breasts, and in boys the testicles and scrotum begin to get larger. Stage 2 of the treatment is the administration of cross-sex hormones (CSH) which can only be prescribed from around the age of 16. Stage 3 is gender reassignment surgery which is only available via adult services to people aged over 18.

16. GIDS takes referrals from across England and Wales and from a wide range of professionals in the health, social services and education sectors, and the voluntary sectors. When a referral is made, the case will be discussed with the relevant regional team. If the intake is successful, then the child will then progress to the GIDS waiting list.

17. As at November 2019 the waiting time for a first assessment at GIDS was between 22-26 months. When a young person reaches the top of the waiting list, they will be invited to the first of a number of assessment appointments at GIDS. The assessment process laid out in the Service Specification anticipates that the assessment process will typically span three to six sessions over 6 months or longer. Most young people will have more sessions than this, and the younger the age the more sessions are likely.

18. Dr Carmichael said that during assessments young persons will be asked, for example, about: the onset of their gender dysphoria; the consistency of their feelings about their gender; how they identify (cross-gender, non-binary, etc); their relationships with peers and family members; their social functioning in general, thoughts about or experience of puberty; their relationship to their bodies; their attractions or romantic relationships as appropriate based on their age and maturity; and their hopes and expectations for the future.

19. As this case is brought by way of judicial review of the GIDS policy and practice, rather than a challenge to an individual treatment decision, it is not possible to give a detailed analysis of the facts of an individual case and the degree to which all the matters referred to by Dr Carmichael were explored in the particular case. We refer at paras 78 to 89 below to the evidence of the experience of the first claimant and some of the other patients of the GIDS service.

20. Dr Carmichael sets out the broad range of professionals who work within GIDS, their specialism in working with young people with GD and the care that is taken when discussing the young person's expression of their gender identity.

21. At the end of the assessment period the clinicians will agree a care plan with the young person and their family. Where the young person fulfils the criteria in the Service Specification and has reached at least Tanner Stage 2 of puberty, they will be referred by GIDS to the first and second Interveners for consultation and/or physical assessment with endocrinologists with a view to being prescribed PBs. Dr Carmichael explains that before any referral to the Trusts, GIDS clinicians discuss the treatment with the young person, including explaining side effects.

The Age and Patient Group for Puberty Blockers

22. Until 2011 PBs were only available at GIDS for those aged 16 or older. In 2011 PBs started to be prescribed for those aged 12-15 and in mid-puberty. This was first done between 2011-14 at University College London Hospital (UCLH) under an approved research study known as the Early Intervention Study. The Study took an uncontrolled treatment cohort of 12-15 year olds with established and persistent GD in England. The Study recruited children for 3 years, but there was then a period until February 2019 when the last cohort member began the next stage of therapy (cross-sex hormones).

23. One of the issues raised in these proceedings is the non-existent or poor evidence base, as it is said to be, for the efficacy of such treatment for children and young persons with GD.

24. In that context, we note that though this research study was commenced some 9 years ago, at the time of the hearing before us the results of this research had yet to be published. Dr Carmichael says in her witness statement dated 2 February 2020 that a paper is now being finalised for publication. At the hearing we were told that that this paper had been submitted for peer-review but that Professor Viner, one of the authors of it, had yet to respond to issues raised by the reviewers, as he has been otherwise engaged in working on issues relating to the coronavirus pandemic.

25. The court was however provided with a paper entitled *"The Early Intervention Study. An evaluation of early pubertal suppression in a carefully selected group of adolescents with "Gender Identity Disorder". A statement and update on the Early Intervention Study (dated 2020)".* We refer further to this paper at para 73 below.

26. There are now two types of endocrine clinic: a clinic for under 15s, referred to as the early intervention clinic, and a clinic for over 15s. The Service Specification states that the early intervention clinic will continue to follow the 2011 Protocol, save that PBs will now be considered for any children *under the age of 12* if they are in established puberty.

27. The age distribution of those treated with PBs in each year between 2011 and 2020 was not provided to the court. Although the defendant and the Trusts said that such data was available, in the sense that the ages of the children are known, the data has not been collated for each year. However, Ms Ailsa Swarbrick, the Divisional Director of Gender Services at the Trust, has presented evidence in relation to patients referred to endocrinology services in 2019-20 and those treated in earlier years but who were discharged from GIDS in 2019-2020. This work was done in response to recommendations in the GIDS Review Action Plan 2019 (a Review commissioned by the Trust following a report by Dr David Bell) that data would help to inform clinical and service developments and a process of continuous improvement.

28. We note here that we find it surprising that such data was not collated in previous years given the young age of the patient group, the experimental nature of the treatment and the profound impact that it has.

29. As it is, for the year 2019/2020, 161 children were referred by GIDS for puberty blockers (a further 10 were referred for other reasons). Of those 161, the age profile is as follows:

> 3 were 10 or 11 years old at the time of referral;
>
> 13 were 12 years old;
>
> 10 were 13 years old;
>
> 24 were 14 years old;
>
> 45 were 15 years old;
>
> 51 were 16 years old;
>
> 15 were 17 or 18 years old.

For the year 2019/20, therefore, 26 of the 161 children referred were 13 or younger; and 95 of the 161 (well over 50%) were under the age of 16.

30. It follows from the information that the court does have on age distribution that some young people could be on PBs for a number of years, in the most extreme case for 5 years between the age of 10 and when they start CSH at 16.

31. Apart from the age distribution, there are other aspects of the patient group which are relevant to this case. The number of referrals to GIDS has increased very significantly in recent years. In 2009, 97 children and young people were referred. In 2018 that number was 2519.

32. Further, in 2011 the gender split was roughly 50/50 between natal girls and boys. However, in 2019 the split had changed so that 76 per cent of referrals were natal females. That change in the proportion of natal girls to boys is reflected in the statistics from the Netherlands (Brik et al "*Trajectories of Adolescents Treated with Gonadotropin-Releasing Hormone Analogues for Gender Dysphoria"* 2018). The defendant did not put forward any clinical explanation as to why there had been this significant change in the patient group over a relatively short time.

33. It is recorded in the GIDS Service Specification and the wider literature that a significant proportion of those presenting with GD have a diagnosis of Autistic Spectrum Disorder (ASD). The Service Specification says:

> "There seems to be a higher prevalence of autistic spectrum disorder (ASD) conditions in clinically referred, gender dysphoric adolescents than in the general adolescent population. Holt, Skagerberg & Dunsford (2014) found that 13.3% of referrals to the service in 2012 mentioned comorbid ASD (although this is likely to be an underestimate). This compares with 9.4% in the Dutch service; whereas in the Finnish service, 26% of adolescents were diagnosed to be on the autism spectrum (Kaltiala-Heino et al. 2015)."

34. The court asked for statistics on the number or proportion of young people referred by GIDS for PBs who had a diagnosis of ASD. Ms Morris said that such data was not available, although it would have been recorded on individual patient records. We therefore do not know the proportion of those who were found by GIDS to be *Gillick* competent who had ASD, or indeed a mental health diagnosis.

35. Again, we have found this lack of data analysis – and the apparent lack of investigation of this issue - surprising.

The process of taking consent

36. The position taken by GIDS is that they will only refer a young person for PBs if they determine that person is competent to give consent, i.e. is *Gillick* competent within the meaning of competence identified in the decision of the House of Lords in *Gillick v West Norfolk and Wisbech Health Authority* [1986] AC 112.

37. Dr Carmichael explained that GIDS takes consent from the young person to their case being referred to the Trusts for treatment; however the consent for the actual prescription of the PBs is taken separately by the clinicians working for the Trusts. She set out the careful process by which GIDS gives information to the young persons and to their parents in order to seek to ensure that the young person is in a position to give valid consent. The court was taken through the statements of Dr Carmichael and Professor Butler and various documents to show the level of information and dialogue that was involved in achieving lawful consent to the treatment. The Service Specification includes Section 3.2 on "Informed Consent". This states *"The consequences of treatment decisions can be significant and life-changing"* and states:

> "All efforts will be made to ensure that clients are aware of the longer term consequences of the endocrine treatments, including implications for fertility, and the decision of the competence of the client will be jointly made by the endocrine and psychological members of the Service's integrated team.
>
> The current context of treatment decisions about cross sex hormones in adolescence is that there is limited scientific evidence for the long-term benefits versus the potential harms of the intervention. There are also concerns that it is uncertain whether or not a young person will continue to identify as transgender in the future, given that some subsequently identify in a different way."

38. The defendant has recently adopted a Standard Operating Procedure for the taking of consent in GIDS. This has taken 2 years to develop and is dated 31 January 2020. Dr Carmichael says at para 33 of her first statement:

> "In advance of any referral by the Trust of a young person for consideration by an endocrinologist for GnRHa treatment, GIDS clinicians discuss treatment with the young person. This includes, checking that the young person's hopes for treatment are realistic, explaining what the treatment can and cannot do, discussing any potential

> side-effects, discussing fertility and potential impact on genital development for birth registered males. We have developed visual aids to support this process.
>
> UCLH and LTH have collated extensive written information to help young people and their parents further understand the nature of the drugs, their limitations and the possible side effects. These written documents are given to young people at their first endocrine clinic visit. The written documents act as a reference point for patients with questions whilst they contemplate whether they would like to go ahead with the referral, and subsequently with treatment. In particular, informational slides titled "Have you thought about having children in the future?" explains the impact GnRHa treatment can have on fertility in explicit terms. Young people and their families are encouraged to raise any questions with their GIDS clinicians or at their next endocrine clinic visit."

39. Ms Morris emphasised that the process of ensuring that consent could validly be given was a discursive and iterative one that involved multiple discussions and answering any questions the young people or their parents might raise. Dr Carmichael said at para 35: "*The GIDS clinicians make it very clear to children and young people that there are both known and unknown risks associated with GnRHa treatment."* Further, she said at para 41: "*In my experience, those young people we see who are recommended for GnRHa treatment understand the implications and limitations of treatment with GnRHa treatment and are able to consent to this stage of treatment."*

40. Professor Butler described the approach to consent at the Trusts as follows:

> "For those under 15 years of age all the pre-assessment consultations are individual and occur with a consultant or senior clinical fellow on at least two visits. Parental support (or that of their guardian or social services where appropriate) is a pre-requisite for the under 15 year stream. On occasions, a young person is not deemed, on clinical examination, to be at an appropriate stage of puberty so further follow-up visits are arranged thereafter at 6-12 monthly intervals until a person is deemed at an appropriate physical stage for intervention and taking of consent. This also gives the opportunity to judge the level of emotional cognitive and psychosocial maturity, and capacity.
>
> The decisions at UCLH and Leeds do not automatically follow on from those made at the GIDS Tavistock. They are a reassessment of physical maturity and cognitive capacity in their own right. They may be at odds with the Tavistock formulation (an infrequent event) and thus would be returned to the Tavistock MDT for reconsideration."

41. Professor Butler said that in his clinic they are careful to ensure that the force behind the decision to seek treatment comes from the young person themselves and is not a consequence of pressure upon them from others around them. The Trusts work closely

with parents to reach a solution that is satisfactory to all and meets the best interests of the child. His clinic has never sought to apply to the Court under its inherent jurisdiction "against" parental opinions because he is concerned that would cause familial frictions. Equally, he suggested UCLH would not wish to have to apply to the court for consent on behalf of the child because it would delay treatment and put an additional burden on GIDS and the Trusts; and because "*it would also increase the distress suffered by the young people themselves, finding that their right to autonomous decision making had been removed from them.*"

42. Professor Butler said a full written information package is provided to older adolescents. For those under 15 there is an initial individual consultation because of the need for "*individualising the approach for very young people, taking special care to assess their level of knowledge and understanding and they are given the written information package then.*" In relation to impacts on fertility and sexual functioning he says:

> "It is also relevant for the consultation purposes that matters of fertility are discussed and counselling by the team takes place, and the option of meeting a fertility specialist is offered, and often taken up. The options of fertility preservation are discussed with all the young people and it is a requirement of the consent process that they fully understand this at an age appropriate level. This understanding must include that they are unable to have the typical sexual relationship of their identified gender with another person on account of their biological sex organ development, and that other surgical procedures may be necessary later on to achieve this possibility."

43. He then said: "*it is an absolute requirement before starting any treatment that a young person can fully understand this effect on fertility and sexual functioning according to their age and level of maturation.*"

44. The court asked for statistical material on the number, if any, of young people who had been assessed to be suitable for PBs but who were *not* prescribed them because the young person was considered not to be *Gillick* competent to make the decision, whether at GIDS or the Trusts. Ms Morris could not produce any statistics on whether this situation had ever arisen. She suggested that in the main, GIDS would work with the young person to give them further information, discuss the matter further and in some cases wait until they had achieved further maturity. The court gained the strong impression from the evidence and from those submissions that it was extremely unusual for either GIDS or the Trusts to refuse to give PBs on the ground that the young person was not competent to give consent. The approach adopted appears to be to continue giving the child more information and to have more discussions until s/he is considered *Gillick* competent or is discharged.

45. Relevant to the evidence of consent is the evidence of Professor Scott (Director of University College London's Institute of Cognitive Neuroscience). She *"seeks to explain, from a neuroscientific point of view, why I have significant doubts about the ability of young people under the age of 18 years old to adequately weigh and*

appreciate the significant consequences that will result from the decision to accept hormonal treatment for gender dysphoria."

46. She explained the neurological development of adolescents' brains that leads to teenagers making different, more risky decisions than adults. She said further that this is backed up by behavioural studies showing that when decision making is "hot" (i.e. more emotional), under 18 year olds make less rational decisions than when the responses are made in a colder, less emotional context. Her conclusion was that:

> "11. … given the risk of puberty blocking treatment, and the fact that these will have irreversible effects, that have life-long consequences, it is my view that even if the risks are well explained, that in the light of the scientific literature, that it is very possible for an adolescent to be unable to fully grasp the implications of puberty-blocking treatment. All the evidence we have suggests that the complex, emotionally charged decisions required to engage with this treatment are not yet acquired as a skill at this age, both in terms of brain maturation and in terms of behaviour."

Parental consent

47. If a child cannot give consent for treatment because they are not *Gillick* competent then the normal position in law would be that someone with parental responsibility could consent on their behalf. Mr Hyam sought at one point to argue that a decision as to giving PBs would fall outside the scope of parental responsibility because of the nature of the treatment concerned. However, the GIDS practice in relation to acting on parental consent alone is quite clear. In the response to the pre-action protocol letter the defendant said:

> "36. There is a fundamental misunderstanding in your letter, which states that parents can consent to pubertal suspension on behalf of a child who is not capable of doing so. This is not the case for this service, as is clear from the above. Although the general law would permit parent(s) to consent on behalf of their child, GIDS has never administered, nor can it conceive of any situation where it would be appropriate to administer blockers on a patient without their consent. The Service Specification confirms that this is the case."

It follows that is not necessary for us to consider whether parents could consent to the treatment if the child cannot lawfully do so because this is not the policy or practice of the defendant and such a case could not currently arise on the facts.

The effect of Puberty Blockers

48. PBs have been used for many years to stop precocious puberty. This is a condition experienced largely by children aged 7 or under when puberty commences at a very early age. This condition is seen more often in natal girls but sometimes in natal boys. PBs are used to stop this early onset of puberty and the use of them ceases when the child reaches an appropriate age for puberty. As can be seen from the evidence this use of PBs does not interfere with the onset of puberty at a normal biological age and, as such, will not interfere with normal development of puberty through adolescence.

49. The use of PBs in cases of GD is quite different. We have some evidence of the history of this treatment and the meaning of puberty from Professor Hruz (Associate Professor of Paediatrics, Endocrinology and Diabetes at Washington University, St Louis, USA) on behalf of the claimants.

50. In summary, PBs were first used for such treatment at a Dutch gender clinic in the late 1990s. That clinic developed a protocol, often referred to as the Dutch protocol. The Dutch protocol was published in the European Journal of Endocrinology in 2006 and called for puberty suppression to begin at the age of 12 after a diagnosis of GD. Puberty is understood in medicine or biology as a process of physiological change involving the process of maturation of the gonads. Hormones in a part of the brain secrete a gonadotropin-releasing hormone which, in turn, stimulates the pituitary gland to secrete other hormones. These stimulate the growth of the gonads, that is ovaries in females and testes in males. Further hormones are secreted which contribute to the further development of the primary sex characteristics, the uterus in females and the penis and scrotum in males. The hormones contribute to the development of secondary sex characteristics including breasts and wider hips in girls and wider shoulders, deeper voices and increased muscle mass in boys. Further growth hormones are released, which stimulate growth. With regular injection of the PBs there is no progression of puberty and some regression of the first stages of already developed sexual characteristics. This means that in girls *"breast tissue will become weak and may disappear completely"* and in boys *"testicular volume will regress to a lower volume."*

51. Under the Dutch protocol, the introduction of CSH starts at age 16. As Professor Hruz explained:

> "29. Then, starting at age 16, cross-sex hormones are administered while GnRH analogue treatment continues, in order to induce something like the process of puberty that would normally occur for members of the opposite sex. In female-to-male patients, testosterone administration leads to the development of "a low voice, facial and body hair growth, and a more masculine body shape" as well as to clitoral engagement and further atrophying of breast tissue. In patients seeking a male-to-female transition, the administration of estrogens will result in "breast development and a female-appearing body shape." Cross-sex hormone administration for these patients will be prescribed for the rest of their lives."

52. There is some dispute as to the purpose of prescribing PBs. According to Dr Carmichael, the primary purpose of PBs is to give the young person time to think about their gender identity. This is a phrase which is repeated on a number of the GIDS and Trust information documents. The Health Research Authority carried out an investigation into the Early Intervention Study in 2019. Its report was somewhat critical of the description of the purpose and said:

> "The research team described the purpose of pubertal suppression as 'to induce a sex hormone-neutral environment to provide young people with space to decide whether to progress further with gender reassignment treatment as an adult.' This phrase appears to have caused confusion as it has been interpreted by some that the puberty suppression was for use in

> any children presenting to the clinic, that there would be no change in the course of any gender identity dysphoria during this time, and that the child could then choose to progress to cross-sex hormone treatment or to stop treatment with subsequent onset of puberty in the birth gender. It has been noted that the participants in this study and other research involving early puberty suppression have progressed to cross-sex hormones. This has raised concerns that the treatment might be responsible for generating persistence, rather than 'creating space to decide'.
>
> It would have reduced confusion if the purpose of the treatment had been described as being offered specifically to children demonstrating a strong and persistent gender identity dysphoria at an early stage in puberty, such that the suppression of puberty would allow subsequent cross-sex hormone treatment without the need to surgically reverse or otherwise mask the unwanted physical effects of puberty in the birth gender. The present study was not designed to investigate the implications on persistence or desistence of offering puberty suppression to a wider range of patients, it was limited to a group that had already demonstrated persistence and were actively requesting puberty blockers."

53. Professor Butler said that PBs:

> "may have some help or advantage in the support of transgender adolescents in some aspects of mental health functioning, in particular with reducing the risk of reduction of suicidal ideation and actual suicidal actions themselves."

54. See further the reference at para 73 below to the paper presented by Dr Carmichael and Professor Viner in 2014, referring to the Early Intervention Study and the limited evidence of psychological benefit.

55. As is clear from the literature and referred to by the HRA, the other purpose of giving PBs is stopping the development of the physical effects of puberty (something that obviously varies depending on at what age and stage in pubertal development the PBs are commenced) because slowing or preventing the early development of secondary sex characteristics during puberty can make a later transition (both medical and social) to living as the opposite sex easier.

The relationship between Puberty Blockers and Cross-Sex Hormones (CSH)

56. GIDS and the Trust place reliance on the fact that Stage 1 treatment with PBs and Stage 2 treatment (CSH) are separate. Thus, so it is said, it is possible for a young person to come off the PBs at any point and not proceed to taking CSH. On one view, this is correct. However, the evidence that we have on this issue clearly shows that practically all children / young people who start PBs progress on to CSH.

57. No precise numbers are available from GIDS (as to the percentage of patients who proceed from PBs to CSH). There was some evidence based on a random sample of those who in 2019-2020 had been discharged or had what is described as a closing summary from GIDS. However the court did have the evidence of Dr de Vries. Dr de Vries is a founding board member of EPATH (European Professional Association for Transgender Health) and a member of the WPATH (World Professional Association for Transgender Health) Committee on Children and Adolescents and its Chair between 2010 and 2016, and leads the Centre of Expertise on Gender Dysphoria at the Amsterdam University Medical Centre in the Netherlands (CEGD). This is the institution which has led the way in the use of PBs for young people in the Netherlands; and is the sole source of published peer reviewed data (in respect of the treatment we are considering) produced to the court. She says that of the adolescents who started puberty suppression, only 1.9 per cent stopped the treatment and did not proceed to CSH.

58. We were told that the defendant did not have any data recording the proportion of those on puberty blockers who progress to cross-sex hormones. We were told that in part this resulted from the fact that some would have progressed to adult services and would not be recorded by the defendant. Ms Swarbrick had carried out an analysis of a random sample of 312 of 1648 files of patients discharged from GIDS from 1st March 2019 to 4th March 2020. Dr Carmichael summarised this as:

> "…based on a random sample of those referred to GIDS who had been discharged or had a closing summary from GIDS in 19-20 (analysis B) 16% of patients (49 individuals) had accessed the endocrinology service during their time with GIDS. Of those 16%, 55% (27 individuals) were subsequently approved for or accessed cross-sex hormones during their time with GIDS. This number represents 8.7% of all the patients discharged from GIDS that year. We also know that of the 49 patients who were referred to endocrinology for GnRHa whilst at GIDS, two did not commence GnRHa treatment, and a further five were discharged from GIDS without being referred on to another gender service."

59. We find it surprising that GIDS did not obtain full data showing the figures and the proportion of those on puberty blockers who remain within GIDS and move on to cross-sex hormones. Although neither Dr Carmichael nor Professor Butler could give the equivalent figures in the United Kingdom to those from the Netherlands, the language used in their witness statements suggests that a similarly high proportion of children and young people in the United Kingdom move from PBs onto CSH.

The impact of Puberty Blockers and their reversibility

60. Both WPATH and the Endocrine Society in their documentation describe PBs as fully reversible. Professor Butler says that "*we do not know everything about the blocker and as far as we know it is a safe reversible treatment with a well-established history."* Dr Alvi also referred to the history of the use of PBs as showing that they are fully reversible. However, it is important to note that apart from the Amsterdam study, the history of the use of PBs relied upon in this context is *from the treatment of precocious*

puberty which is a different condition from GD, and where PBs are used in a very different way.

61. Dr de Vries was somewhat more nuanced in her evidence. She said:

> "Puberty blocking treatment is fully reversible (see for example section 2.0 of the Endocrine Society's Clinical Practice Guidelines…). By fully reversible I mean that the administration of puberty blockers in young people has no irreversible physical consequences, for example for fertility, voice deepening or breast growth".

62. At para 20 of her evidence she said:

> "Ethical dilemmas continue to exist around … the uncertainty of apparent long-term physical consequences of puberty blocking on bone density, fertility, brain development and surgical options."

63. The GIDS Early Intervention Young Person Information Sheet states:

> "What are the possible benefits of starting on hormone blockers?
>
> We have looked at other countries who have given this treatment **and the results** suggest that:
>
> - Hormone blockers which block the body's natural sex hormones may improve the way you feel about yourself.
> - If you decide to stop the hormone blockers early **your physical development** will return as usual in your natal gender. **As far as we are aware**, the hormone blockers will not harm your physical or psychological development.
> - Hormone blockers will make you feel less worried about growing up in the wrong body and will give you more time and space to think about your gender identity.
>
> What are the possible disadvantages and risks of the hormone blockers?
>
> - Possible side effects from the hormone blockers are hot flushes, headache, nausea and weight gain.
> - A short term effect is that your bone strength is shown not to grow as fast as it usually would whilst you are on hormone blockers. However, this will resume once your body is exposed to hormones again. That is why we have to do a bone scan every year to check the thickness of your bones. **We do not fully know how hormone blockers will affect bone strength, the development of your sexual organs, body shape or your final adult height. There**

> **could be other long-term effects of hormone blockers in early puberty that we don't yet know about.**
>
> - Hormone blockers could affect your memory, your concentration or the way you feel about your gender and how likely you are to change your mind about your gender identity.
>
> - Hormone blockers could affect your ability to have a baby. It could take 6 to 12 months longer after stopping the hormone blockers before natal boys start making sperm again or natal girls start maturing eggs in their ovaries. However, hormone blockers do not work as a contraceptive. If you are sexually active, please ask your doctor for advice about birth control." (emphasis added)

64. A number of aspects of this asserted reversibility are raised by the claimants. PBs stop the physical changes in the body when going through puberty. But in reliance on the evidence of Professor Levine (Clinical Professor of Psychiatry at Western Reserve University, Ohio) and Professor Hruz, the claimants assert that neurological and psychological changes occurring in puberty are less well understood than the physiological changes. Further, the degree to which neurological differences are caused by biological factors like hormones and genes are matters of debate. Professor Levine set out evidence on the degree to which young people mature through adolescence through both social and personal experiences. For young people on PBs that maturing process is stopped or delayed with potential social and psychological impacts which could be described as non-reversible.

65. Thus, the central point made by the claimants is that although most of the physical consequences of taking PBs may be reversible if such treatment is stopped, the child or young person will have missed a period, however long, of normal biological, psychological and social experience through adolescence; and that missed development and experience, during adolescence, can never be truly be recovered or "reversed".

66. It is to be noted that prior to June 2020, the NHS website on PBs said:

> "The effects of treatment with GnRH analogues are considered to be fully reversible, so treatment can usually be stopped at any time."

67. In June 2020 this section was updated to read as follows:

> "**Little is known about the long-term side effects of hormone or puberty blockers in children with gender dysphoria.**
>
> Although the Gender Identity Development Service (GIDS) advises that is a physically reversible treatment if stopped, **it is not known what the psychological effects may be.**

> **It's also not known whether hormone blockers affect the development of the teenage brain or children's bones**. Side effects may also include hot flushes, fatigue and mood alterations." (emphasis added)

68. A second key part of the argument about reversibility turns on the relationship between PBs and CSH and the degree to which commencing PBs in practice puts a young person on a virtually inexorable path to taking CSH. CSH are to a very significant degree not reversible. As is set out above at para 57 above, a very high proportion of those who start PBs move on to CSH and thus in statistical terms once a child or young person starts on PBs they are on a very clear clinical pathway to CSH.

Evidence base to support the use of Puberty Blockers for Gender Dysphoria

69. The claimants submit that the treatment of PBs for GD is properly described as (i) experimental (ii) a treatment with a very limited evidence base, and (iii) as a highly controversial treatment. The claimants rely on witness statements from a number of undoubted experts in various relevant fields and from academic institutions in the United Kingdom, the USA, Sweden and Australia who refer to the controversial nature of the treatment and its limited evidential support.

70. It is not however the court's role to judge the weight to be given to various different experts in a judicial review. In our view, more important is the evidence from the defendant and the evidence base *it* relies upon for the use of PBs. In the USA the treatment of GD is not an FDA approved use and as such PBs can only be used "off-label". That does not prevent clinicians, whether in the USA or the United Kingdom, from using PBs for this purpose, as long as their use falls within the clinician's professional expertise. Professor Butler explained that it is very common for paediatric medicines to be used off-label and that this factor does not render the treatment in any sense experimental.

71. However, the lack of a firm evidence base for their use is evident from the very limited published material as to the effectiveness of the treatment, however it is measured.

72. Paul Jenkins, Chief Executive of the defendant said:

> "…it is correct that in recent years, some clinicians [at the Trust] have raised their concerns about the use of GnRHa for young people presenting with gender dysphoria. Indeed, some have called for the Trust to alter its practices and have done so in a variety of ways. We are keenly aware that the subject of gender dysphoria raises complex issues and that many have strong opinions about it."

73. The Evaluation Paper on the Early Intervention Study at GIDS, referred to in para 25 above, gives some (albeit limited) material on the outcome of that study. It summarised a meeting paper presented by Dr Carmichael and Professor Viner in 2014 (but not published in a peer review journal) as follows:

> "The reported qualitative data on early outcomes of 44 young people who received early pubertal suppression. It noted that 100% of young people stated that they wished to continue on GnRHa, that 23 (52%) reported an improvement in mood since starting the blocker but that 27% reported a decrease in mood. **Noted that there was no overall improvement in mood or psychological wellbeing using standardized psychological measures**." (emphasis added)

74. Ms Morris submitted it is not for this court to determine clinical disagreements between experts about the efficacy of a treatment. We agree. That is a matter for the relevant NHS and regulatory bodies to oversee and to decide. However the degree to which the treatment is experimental and has, as yet, an unknown impact, does go to the critical issue of whether a young person can have sufficient understanding of the risks and benefits to be able lawfully to consent to that treatment.

Persistence

75. The claimants submit that there is good evidence that for a significant proportion of young people presenting with GD, the condition resolves itself through adolescence without treatment with PBs. Further, that PBs serve to increase the likelihood of GD, and, as such, can be positively harmful to the child or young person's long-term health. According to DSM5: "*in natal males, persistence of [gender dysphoria] has ranged from 2.2% to 30%. In natal females, persistence has ranged from 12% to 50%."* These figures need to be treated with some caution because it may be that the cohort whose persistence was being considered in these statistics was at a lower age and with less clearly established GD than the young people being treated at GIDS.

76. The Dutch study argued that adolescents who show established GD rarely identify as their biological sex. Professor Hruz suggested there may be two reasons for this. It may be that the clinicians made sound diagnoses of persistent GD. Alternatively, it may be that the very fact of the diagnosis and the course of treatment which affirmed that diagnosis (that is, both gender affirmative psychotherapy and the use of PBs) solidified the feeling of cross-gender identification and led the young people to commit to sex reassignment more strongly than they would have done if there had been a different diagnosis and treatment.

77. As already indicated, it is not our role to adjudicate on the reasons for persistence or otherwise of GD. However, the nature of this issue highlights the highly complex and unusual nature of this treatment and the great difficulty there is in fully understanding its implications for the individual young person. In short, the treatment may be supporting the persistence of GD in circumstances in which it is at least possible that without that treatment, the GD would resolve itself.

SECTION B: EVIDENCE OF THE CLAIMANTS AND OTHER INDIVIDUALS

78. The first claimant was born a female. In her witness statement in these proceedings she set out her experience of being prescribed PBs and then CSH. It should be noted that some of the details relating to her treatment and the information she was given (at GIDS and the first defendant) is disputed. This case is a judicial review of the GIDS policy,

not a tort action relating to the specific facts surrounding the first claimant's treatment and it is not necessary therefore to resolve any factual dispute. We simply record the first claimant's account. She describes a highly traumatic childhood. From the age of 4 or 5 she displayed gender non-conformity, associating more with male games and clothes. She felt highly alienated at secondary school and took birth control pills to stop her periods. She felt disgusted by her body and became depressed and highly anxious. From the age of 14 she began actively to question her gender identity and started to look at YouTube videos and do research on the internet about gender identity disorder and the transition process. She said: "*I thought I had finally found the answer as to why I felt so masculine, uncomfortable with my female body and why I was so much more similar to a stereotypical boy than to a stereotypical girl in physical expression and interests."*

79. When she was 15, the first claimant was referred to GIDS. When she was at the local Children and Adolescent Mental Health Services clinic she remembered: *"the psychiatrist attempted to talk of the gender spectrum as a way of persuading me to not pursue medical transition. I took this as a challenge to how serious I was about my feelings and what I wanted to do and it made me want to transition more. Now I wish I had listened to her."* She was first seen at GIDS aged 16 and had a number of appointments spread out over 1 year and 9 months. She was referred to UCLH in June 2013 and after three appointments commenced PBs. She was given advice about the impact on her fertility, but her priority was to move on to testosterone. She said that at 16, she was not thinking about children and, in any event, egg storage was not available on the NHS.

80. In April 2014 she was referred to an adult Gender Identity Clinic to discuss surgery. She "*was visualising myself becoming a tall, physically strong young man where there was virtually no difference between me and a biological boy."* After commencing testosterone at 17, changes to her body commenced rapidly: these changes included genital changes, her voice dropping and the growth of facial and body hair. She was on testosterone for 3 years but increasingly began to doubt the process of transition:

> "27. I started to have my first serious doubts about transition. These doubts were brought on by for the first time really noticing how physically different I am to men as a biological female, despite having testosterone running through my body. There were also a lot of experiences I could not relate to when having conversations with men due to being biologically female and socialised in society as a girl. There was an unspoken "code" a lot of the time that I felt I was missing. I remember telling a close male friend at the time about these transition doubts, who responded by telling me that I was being silly and I believed him. This was reinforced by the online forums that I browsed where the consensus was that most transsexual people have doubts and that that is a normal part of transitioning, so the doubts should be ignored. I continued on, pushing the doubts in the far back of my mind and no more doubts creeped in for a while."

81. Despite these doubts, when she was 20, she had a double mastectomy. In the year following this:

> "31. … I started to realise that the vision I had as a teenager of becoming male was strictly a fantasy and that it was not possible. My biological make-up was still female and it showed, no matter how much testosterone was in my system or how much I would go to the gym. I was being perceived as a man by society, but it was not enough. I started to just see a woman with a beard, which is what I was. I felt like a fraud and I began to feel more lost, isolated and confused than I did when I was pre-transition."

82. She described facing the reality of taking a regular dose of drugs for the rest of her life to maintain her male appearance; and the need to have a hysterectomy if she remained a man because of the atrophy of her reproductive organs if she continued to take testosterone.

83. From January 2019 the first claimant stopped taking testosterone. She now wishes to identify as a woman and is seeking to change her legal sex back to that on her original birth certificate. She said:

> "39. … It is only until recently that I have started to think about having children and if that is ever a possibility, I have to live with the fact that I will not be able to breastfeed my children. I still do not believe that I have fully processed the surgical procedure that I had to remove my breasts and how major it really was. I made a brash decision as a teenager, (as a lot of teenagers do) trying to find confidence and happiness, except now the rest of my life will be negatively affected. I cannot reverse any of the physical, mental or legal changes that I went through. Transition was a very temporary, superficial fix for a very complex identity issue."

84. The defendant submits the first claimant was given the fullest possible information after a large number of consultations (at least 10) and that she was *Gillick* competent to make the decision to take PBs. Further, the defendant produced witness statements from a number of children and young people who are strongly supportive of the treatment they have received.

85. J is a 20 year old transgender man who received PBs in 2012 at the age of 12 followed by CSH in 2015. He described how he felt a strong need to become a boy from an early age and how he was bullied at school for his behaviour. He found the onset of female puberty horrifying and unbearable. After a number of sessions at GIDS he was prescribed PBs from the age of 12.

86. According to J he was given the fullest possible information from the clinicians at GIDS as to the benefits and disbenefits of the treatment. The clinicians strongly challenged his desire to transition and why he had chosen to express his gender identity as male. He was advised as to the impact on fertility if he chose to go on to CSH and surgery. He said: "*I made the decision to proceed with pubertal suppression without pursuing egg preservation. It was a difficult decision to make because I did not know whether I would want biological children in adulthood, but I was certain I would never want to*

carry a child and give birth. Ultimately, I made the decision because I had a poor quality of life and without immediate treatment I did not feel I had a future at all." He says: "*We discussed sex and I told them the idea of it disgusted me. I knew I would be unable to consider having a sexual relationship as an adult with my body so wrongly formed."* He ended his witness statement by saying that he is thankful that his pubertal development was halted as it removed the distress caused by continued development, but he wishes that the PBs were started earlier which would have prevented the need for breast surgery later.

87. S is a 13 year old trans boy who is on the waiting list at GIDS. He was told that he would have to wait for approximately 24 months to be seen and with his parents decided to see a private provider, GenderGP, where he has been prescribed PBs. We note at this point that the GP in question was removed from the professional register and now operates from outside the United Kingdom. S in his witness statement said:

> "13. … I haven't really thought about parenthood – I have been asked about it by the gender identity specialist I have mentioned but I just have no idea what me in the future is going to think. I haven't had a romantic relationship and it's just not a thing that is really on my radar at the moment."

88. N, an 18 year old trans woman, who was prescribed PBs when she was 17 years old said:

> "12. The treatment of hormone blockers may very well have saved my life. In the period of my life that I was prescribed them my mental health was spiralling due to my dysphoria and this impacting on my daily life, learning and social interactions. While the first injections of gonapeptyl were slow to take effect they eventually began to alleviate my dysphoria in very real ways. I had to shave less and I didn't have to fear pubertal development anymore. I had the time necessary to think about my situation and decide on further courses of action. This also helped my mental health as it gave me significantly less issues overall allowing me to focus and concentrate on aspects in my life alongside my gender identity rather than my fears of puberty and development overtaking everything else in my life."

89. The second claimant, Mrs A, is the mother of a 15 year old girl who has ASD. The daughter has a history of mental health and behavioural problems. She "*is desperate to run away from all that made her female"* and has been referred to CAMHS (Child and Adolescent Mental Health Services). Mrs A is very concerned that her daughter would be referred to GIDS and prescribed PBs. However the daughter has not currently been referred to GIDS and having regard to the defendant's current practice, would not meet the criteria for PBs because her parents would not support that treatment. Mrs A's interest in this action is therefore largely theoretical.

SECTION C: SUBMISSIONS

90. The claimants' primary case is that children or young persons under the age of 18 are not capable of giving consent to the administration of PBs. Their secondary case is that the information given by the defendant and the Interested Party is misleading and inadequate to form the basis for informed consent to be given. In their statement of issues, the claimants put issue one as the adequacy of the information and issue two whether children and young people are capable of giving consent. In our view, the first issue must be whether *Gillick* competence can be achieved, and the secondary or alternative issue, whether the information being given is adequate. We deal with the arguments in that order.

91. Mr Hyam also raised a third issue (at least in writing). This was a submission that if any young person under the age of 18 is prescribed PBs, their case should be referred to the Court of Protection. In oral argument he accepted that the Court of Protection, being a creature of statute, would have no jurisdiction to consider such referrals. We think that the substance of issue three falls within the terms of issue one.

92. Mr Hyam stressed that the claimants were not calling into question that GD existed. Nor were they questioning that it could cause extreme distress or that PBs should never be given to people under 18 or that it was never in their best interests for it to be prescribed. The central issue was whether those under 18 could give informed consent.

93. Mr Hyam submitted that a child still going through puberty is not capable of properly understanding the nature and effect of PBs and weighing the consequences and side effects properly. He pointed to the evidence of the individuals, including that put forward on behalf of the defendant, to show that children of this age cannot understand the implications of matters such as the loss of the ability to orgasm, the potential need to construct a neo-vagina, or the loss of fertility. He argued that the use of PBs to address GD does not have an adequate evidence base to support it and thus should properly be described as experimental treatment. There is evidence that PBs can have significant side effects and there is strong evidence that once a child commences on PBs they will progress to CSH which will cause irreversible changes to the child's body with lifelong medical, psychological and emotional implications for the child. He relies on the harm potentially caused to these vulnerable young people as evidenced by the witness statement of the first claimant.

94. He submitted that the advice given to the children and young persons is misleading because they are told that the PBs are fully reversible when the current evidence on reversibility or the long term implications of the treatment is limited and unclear. He said further, that the reality is that PBs pave the way for CSH which do have irreversible impacts. Further, the information provided by GIDS fails to tell the child that there are no proven benefits to this treatment in either physical or psychological terms. The information is misleading as to the reversibility of PBs, their purpose and their benefits.

95. In those circumstances he submitted that the court should be guided by the approach of the Court of Protection in its *Practice Guidance (Court of Protection: Serious Medical Treatment)* [2020] 1 WLR 641 which sets out those decisions relating to medical treatment where an application should be made to the Court of Protection.

96. Paras 10 and 11 of that Guidance state:

> "10. In any case which is not about the provision of life-sustaining treatment, but involves the serious interference with the person's rights under the ECHR, it is:
>
> "highly probable that, in most, if not all, professionals faced with a decision whether to take that step will conclude that it is appropriate to apply to the court to facilitate a comprehensive analysis of [capacity and] best interests, with [the person] having the benefit of legal representation and independent expert advice."
>
> This will be so even where there is agreement between all those with an interest in the person's welfare.
>
> 11. Examples of cases which may fall into paragraph 10 above will include, but are not limited to: (a) where a medical procedure or treatment is for the primary purpose of sterilisation; (b) where a medical procedure is proposed to be performed on a person who lacks capacity to consent to it, where the procedure is for the purpose of a donation of an organ, bone marrow, stem cells, tissue or bodily fluid to another person; (c) a procedure for the covert insertion of a contraceptive device or other means of contraception; (d) where it is proposed that an experimental or innovative treatment to be carried out; (e) a case involving a significant ethical question in an untested or controversial area of medicine."

97. The defendant and the first and second Interveners make common cause. Ms Morris argued that the care and treatment provided at GIDS fell within the terms of the Service Specification laid down by NHS England (NHSE) as required in accordance with the international frameworks of WPATH and the Endocrine Society and by the domestic regulatory frameworks of the General Medical Council and the Care Quality Commission. The NHSE is currently undertaking a review of the efficacy of treatment for GD (the Cass Review) which will report in due course, and its findings will be reflected in the Service Specification.

98. She argued that the process at GIDS was "deeply *Montgomery* compliant" (i.e. it met the requirements for informed consent identified by the Supreme Court in *Montgomery v Lanarkshire Health Board* [2015] AC 1430) having regard to the frequent consultations, discussions and the provision of detailed, but age appropriate, information. The "vast majority" of the children referred for PBs are 15 or older she said, and the information given is varied depending on the age and maturity of the child or young person. Where the assessment is that the individual is not initially *Gillick* competent, time is taken to see if their understanding develops and competency can be achieved. The information that is given is what is salient for that individual at that age.

99. As to those between the ages of 16-18, if the young person, the parents and the clinicians are agreed then she submitted there is no justiciable issue and the court has no jurisdiction.

100. Mr McKendrick for the first and second Interveners argued that the child or young person did not need to understand the impact of CSH on their fertility because that did

not fall to be decided at the stage of prescribing PBs. The PBs provided the space for the person to think about further stages. In appropriate cases, a natal girl or young person's eggs could be harvested and preserved in order to preserve their fertility. The critical thing for the child was that s/he had GD and that there was no alternative physical treatment to PBs. Once the child or young person had reached the Endocrine Clinic at the Trust, there was no alternative psychological treatment available because that was a matter within the purview of GIDS and GIDS had referred the child for PBs, although ongoing psychological treatment is provided at GIDS alongside treatment with PBs. Therefore, the Trust clinicians were faced with a child in acute distress with no alternative treatment options. The purpose of the treatment was to alleviate distress and that, according to Mr McKendrick, had been achieved.

101. When asked by the court what evidence there was that the PBs did achieve the purpose of alleviating distress, in the light of the lack of published research, Mr McKendrick pointed to the evidence of experienced endocrinologists in both Trusts who could see the real benefits of the treatment.

102. Like Ms Morris, Mr McKendrick said the current practice was not to proceed only on parental consent. However, he did argue that if the child's consent was rendered invalid, the treatment would continue to be lawful if the parents had consented.

103. The third Intervener is Transgender Trend Ltd., an organisation that provides evidence-based information and resources for parents and schools concerning children with GD. Ms Davies-Arai is the director of that organisation and she has filed a witness statement in these proceedings. She set out concerns about the lack of evidence as to the impacts and effectiveness of PBs and in relation to which patients it is most likely to help. Much of her evidence focused on the increase of referrals to GIDS of teenage natal girls and the cultural factors, including material on the internet and social media, which may play a part in this. She said that GIDS does not offer young people with GD a range of ways to interpret their experience, and the GIDS pathway offers a minimal challenge to the beliefs and ideas of the young person.

104. Mr Skinner on behalf of Transgender Trend said the case was particularly important because it concerned the deliberate provision by the State of medical treatment to children and young people which may cause harm. The court should be anxious to ensure that vulnerable children, for example those with ASD, are provided with the full protection of the law.

SECTION D: THE LAW

105. In *Gillick v West Norfolk and Wisbech Health Authority* [1986] AC 112, the House of Lords considered the lawfulness of the Secretary of State's policy on giving contraceptive advice to children without parental consent. The House of Lords held by a majority that a doctor could lawfully give contraceptive advice and treatment to a girl aged under 16 if she had sufficient maturity and intelligence to understand that nature and implications of the proposed treatment and provided that certain conditions were satisfied.

106. Lord Fraser at p. 169B-E said:

> "It seems to me verging on the absurd to suggest that a girl or boy aged 15 could not effectively consent, for example, to have a medical examination of some trivial injury to his body or even to have a broken arm set. Of course the consent of the parents should normally be asked, but they may not be immediately available. Provided the patient, whether the boy or a girl, is capable of understanding what is proposed, and of expressing his or her own wishes, I see no good reason for holding that he or she lacks the capacity to express them validly and effectively and to authorise the medical man to make the examination or give the treatment which he advises. After all, a minor under the age of 16 can, with certain limits, enter into a contract. He or she can also sue and be sued, and can give evidence on oath. …."
>
> Accordingly, I am not disposed to hold now, for the first time, that a girl less than 16 lacks the power to give valid consent to contraceptive advice or treatment, merely on account of her age."

107. Lord Scarman at p. 186A-D said:

> "The law relating to parent and child is concerned with the problems of the growth and maturity of the human personality. If the law should impose upon the process of "growing up" fixed limits where nature knows only a continuous process, the price would be artificiality and a lack of realism in an area where the law must be sensitive to human development and social change. If certainty be thought desirable, it is better that the rigid demarcations necessary to achieve it should be laid down by legislation after a full consideration of all the relevant factors than by the courts confined as they are by the forensic process to the evidenced adduced by the parties and to whatever may properly fall within the judicial notice of judges. Unless and until Parliament should think fit to intervene, the courts should establish a principle flexible enough to enable justice to be achieved by its application to the particular circumstances proved by the evidence placed before them."

And at p.189C-E:

> "When applying these conclusions to contraceptive advice and treatment it has to be borne in mind there is much that has to be understood by a girl under the age of 16 if she is to have legal capacity to consent to such treatment. It is not enough that she should understand the nature of the advice which is being given: she must also have a sufficient maturity to understand what is involved. There are moral and family questions, especially her relationship with her parents; long-term problems associated with the emotional impact of pregnancy and its termination; and there are the risks to health of sexual intercourse at her age, risks which contraception may diminish but cannot eliminate. It follows that a doctor will have to satisfy himself that she is able to appraise these factors

> before he can safely proceed upon the basis that she has at law capacity to consent to contraceptive treatment. And it further follows that ordinarily the proper course will be for him, as the guidance lays down, first to seek to persuade the girl to bring her parents into consultation and, if she refuses, not to prescribe contraceptive treatment unless he is satisfied that her circumstances are such that he ought to proceed without parental knowledge and consent."

And p. 191C-D:

> "The truth may well be that the rights of parents and children in this sensitive area are better protected by the professional standards of the medical profession than by "a priori" legal lines of division between capacity and the lack of capacity to consent since any such general dividing line is sure to produce in some cases injustice, hardship, and injury to health."

108. In *R (Axon) v Secretary of State for Health (Family Planning Association Intervening)* [2006] QB 539 Silber J considered *Gillick* in the context of Article 8 of the Convention, the United Nations Convention on the Rights of the Child (UNCRC) and the increasing emphasis on the autonomy of the child. He held that the principles set out in *Gillick* continued to apply, see para 152.

109. There are two cases dealing with children aged 16 or over who refused medical treatment in circumstances where clinicians considered it was clinically indicated. The issue in each was whether the court could nevertheless, authorise the treatment. *Re W (a Minor) (Medical Treatment: Court's Jurisdiction)* [1993] Fam. 64, concerned the case of a 16 year old girl with anorexia nervosa. The local authority applied under the inherent jurisdiction of the High Court to give medical treatment to W without her consent and against her wishes. W relied on section 8 of the Family Law Reform Act 1969, which states:

> "Section 8 is in these terms:
>
> (1) The consent of a minor who has attained the age of 16 years to any surgical, medical or dental treatment which, in the absence of consent, would constitute a trespass to his person, shall be as effective as it would be if he were of full age; and where a minor has by virtue of this section given an effective consent to any treatment it shall not be necessary to obtain any consent for it from his parent or guardian. (2) In this section 'surgical, medical or dental treatment' includes any procedure undertaken for the purposes of diagnosis, and this section applies to any procedure which is ancillary to any treatment as it applies to that treatment. (3) Nothing in this section shall be construed

> as making ineffective any consent which would have been effective if this section had not been enacted."

110. The Court of Appeal held that section 8 did not confer on a minor an absolute right to determine whether or not she received medical treatment but protected the medical practitioner from an action in trespass. Lord Donaldson analysed *Gillick* and said that Lord Scarman would necessarily have considered that the purpose of section 8 was to provide the medical practitioners treating the child with a defence to either criminal assault or a civil claim for trespass, see pages 76G-H and 78D-F. Lord Donaldson described the effect of the section as being a *"legal flak jacket",* whereby the 16-17 year old is conclusively proved to be *Gillick* competent but this did not mean that someone else who has parental responsibility cannot give consent for the treatment.

111. When applying his analysis to the facts of W's case, Lord Donaldson said at p. 80G-81B:

> "I have no doubt that the wishes of a 16 or 17-year-old child or indeed of a younger child who is "Gillick competent" are of the greatest importance both legally and clinically, but I do doubt whether Thorpe J was right to conclude that W was of sufficient understanding to make an informed decision. I do not say this on the basis that I consider her approach irrational. I personally consider that religious or other beliefs which bar any medical treatment or treatment of particular kinds are irrational, but that does not make minors who hold those beliefs any the less "Gillick competent". They may well have sufficient intelligence and understanding fully to appreciate the treatment proposed and the consequences of their refusal to accept that treatment. What distinguishes W from them, and what with all respect I do not think that Thorpe J took sufficiently into account (perhaps because the point did not emerge as clearly before him as it did before us), is that it is a feature of anorexia nervosa that it is capable of destroying the ability to make an informed choice. It creates a compulsion to refuse treatment or only to accept treatment which is likely to be ineffective. This attitude is part and parcel of the disease and the more advanced the illness, the more compelling it may become. Where the wishes of the minor are themselves something which the doctors reasonably consider need to be treated in the minor's own best interests, those wishes clearly have a much reduced significance."

112. Lord Donaldson concluded at p. 84A-B that:

> "No minor of whatever age has power by refusing consent to treatment to override a consent to treatment by someone who has parental responsibility for the minor and a fortiori a consent by the court. Nevertheless such a refusal is a very important consideration in making clinical judgments and for parents and the courts in deciding whether themselves to give consent. Its importance increases with the age and maturity of the minor."

113. Balcombe LJ at p. 87G-H agreed with Lord Donaldson that the parents of a 16 and 17 year old retained the right to consent to treatment even if she did not consent, and that the court could continue to exercise its inherent jurisdiction. Nolan LJ did not express a view as to whether parents could consent to treatment where the child had refused, but considered that the court under its inherent jurisdiction could continue to do so. He said, at p. 94D-E:

> "To take it a stage further, if the child's welfare is threatened by a serious or imminent risk that the child will suffer grave and irreversible mental or physical harm, then once again the court when called upon has a duty to intervene. It makes no difference whether the risk arises from the action or inaction of others, or from the action or inaction of the child. Due weight must be given to the child's wishes, but the court is not bound by them. In the present case, Thorpe J was apparently satisfied on the evidence before him that such a risk existed. In my judgment, he was fully entitled to take this view. By the time the matter came to this court, it was impossible to take any other view. For these reasons, I would dismiss the appeal save to the extent of making the necessary variation of the order of Thorpe J."

114. We were taken to two cases concerning the application of *Gillick* in particularly difficult medical and ethical situations, which are of some assistance in the present case. In *Re L (Medical Treatment: Gillick Competency*) [1998] 2 F.L.R. 810 Sir Stephen Brown P. considered the case of a 14 year old girl with a life threatening condition involving the possibility of a blood transfusion. L was a Jehovah's Witness and would not consent to the blood transfusion. The court ordered that the medical treatment should take place without her consent. The expert clinician appointed by the Official Solicitor is recorded as giving the following evidence:

> "He makes the point that the girl's view as to having no blood transfusion is based on a very sincerely, strongly held religious belief which does not in fact lend itself in her mind to discussion. It is one that has been formed by her in the context of her own family experience and the Jehovah's Witness meetings where they all support this view. He makes the point that there is a distinction between a view of this kind and the constructive formulation of an opinion which occurs with adult experience. That has not happened of course in the case of this young girl."

115. Sir Stephen Brown then concluded at p. 813:

> "It is, therefore, a limited experience of life which she has – inevitably so – but this is in no sense a criticism of her or of her upbringing. It is indeed refreshing to hear of children being brought up with the sensible disciplines of a well-conducted family. But it does necessarily limit her understanding of matters which are as grave as her own present situation. It may be that because of her belief she is willing to say, and to mean it, 'I am willing to accept death rather than to have a blood transfusion', but it is quite clear in this case that she has not been able to be given all the

> details which it would be right and appropriate to have in mind when making such a decision.
>
> I do not think that in this case this young girl is 'Gillick competent'. I base that upon all the evidence that I have heard. She is certainly not 'Gillick competent' in the context of all the necessary details which it would be appropriate for her to be able to form a view about."

116. *Re S (A Child) (Child Parent: Adoption Consent)* [2019] 2 Fam 177 also concerned a child under 16. In that case Cobb J considered the competence of a mother under the age of 16 to consent to her baby being placed for adoption. Cobb J held that it was appropriate and helpful in determining *Gillick* competence to read across and borrow from the relevant concepts and language in the Mental Capacity Act 2005 but cognisant of some fundamental differences, in particular that the assumption of capacity in section 1(2) of that Act did not apply and there was no requirement for any diagnostic characteristic as there is in section 2(1) of the Mental Capacity Act 2005, see paras 15,16 and 60.

117. At paras 34 to 37 Cobb J considered what test he should apply to the information that S needed to understand and then set out the information that would be relevant for the decision in question:

> "34. Macur J in *LBL v RYJ and VJ* [2011] 1 FLR 1279, para 24 held that it would not be necessary for a decision-maker to be able to comprehend "all the peripheral detail" in the assessment of capacity to make the relevant decision; in a case concerning residence and the provision of education, Macur J went on to say, at para 58:
>
> "In [the expert's] view it is unnecessary for his determination of RYJ's capacity that she should understand all the details within the statement of special educational needs. It is unnecessary that she should be able to give weight to every consideration that would otherwise be utilised in formulating a decision objectively in her 'best interests'. I agree with his interpretation of the test in section 3 which is to the effect that the person under review must comprehend and weigh the salient details relevant to the decision to be made. To hold otherwise would place greater demands upon RYJ than others of her chronological age/commensurate maturity and unchallenged capacity."
>
> 35. In the same vein, Baker J remarked in *H v A Local Authority* [2011] EWHC 1704 at [16(xi)]: "[the] courts must guard against imposing too high a test of capacity to decide issues such as residence because to do so would run the risk of discriminating against persons suffering from a mental disability."
>
> 36. Although not cited in argument, I further remind myself of the comments of Chadwick LJ in the Court of Appeal in *Masterman-Lister v Brutton & Co (Nos 1 and 2)* [2003] 1 WLR 1511, para 79: "a person should not be held unable to understand the information relevant to a

decision if he can understand the explanation of that information in broad terms and simple language…" So, says Ms Dolan, it is not necessary for S to understand all the peripheral and non-salient information in the adoption consent form in order to be declared capacitous. Nor does she even need to fully understand the legal distinctions between placement for adoption under a placement order and not under a placement order. Indeed, Ms Dolan herself relies in this regard on *In re A (Adoption: Agreement: Procedure)* [2001] 2 FLR 455, para 43 where Thorpe LJ observes that the differences between freeing and adoption are "complex in their inter-relationship and it is not to be expected that social workers should have a complete grasp of the distinction between the two, or always to signify the distinction in their discussion with the clients" (my emphasis)." If social workers are not expected to understand the complexities of the legislation (or its predecessor) or explain the distinction accurately to the parents with whom they are working asks Ms Dolan, why should a person under the age of 16 be expected to be able to grasp them in order to be able to be declared capacitous?

37. Accordingly, argues the local authority, the salient or "sufficient" information which is required to be understood by the child parent regarding extra-familial adoption is limited to the fundamental legal consequences of the same. The factors discussed at the hearing include: (i) your child will have new legal parents, and will no longer be your son or daughter in law, (ii) adoption is final, and non-reversible; (iii) during the process, other people (including social workers from the adoption agency) will be making decisions for the child, including who can see the child, and with whom the child will live; (iv) you may obtain legal advice if you wish before taking the decision; (v) the child will live with a different family forever; you will (probably) not be able to choose the adopters; (vi) you will have no right to see your child or have contact with your child; it is highly likely that direct contact with your child will cease, and any indirect contact will be limited; (vii) the child may later trace you, but contact will only be re-established if the child wants this; (viii) there are generally two stages to adoption; the child being placed with another family for adoption, and being formally adopted; (ix) for a limited period of time you may change your mind; once placed for adoption, your right to change your mind is limited, and is lost when an adoption order is made."

118. Cobb J's conclusions were these:

"60… It follows that in order to satisfy the Gillick test in this context the child parent should be able to demonstrate "sufficient" understanding of the "salient" facts around adoption; she should understand the essential "nature and quality of the transaction" (per Munby J in *Sheffield City Council v E* [2005] Fam 326, para 19) and should not need to be concerned with the peripheral.

> 61. It will, however, be necessary for the competent child decision-maker to demonstrate a "full understanding" of the essential implications of adoption when exercising her decision-making, for the independent CAFCASS officer to be satisfied that the consent is valid. If consent is offered under section 19 and/or section 20 of the 2002 Act, it will be necessary for a form to be signed, even if not in the precise format of that identified by Practice Direction 5A. I accept that on an issue as significant and life-changing as adoption, there is a greater onus on ensuring that the child understands and is able to weigh the information than if the decision was of a lesser magnitude: see Baker J in *CC v KK and STCC* [2012] COPLR 627, para 69. This view is consistent with the Mental Capacity Act 2005 Code of Practice, which provides, at paragraph 4.19:
>
> "a person might need more detailed information or access to advice, depending on the decision that needs to be made. If a decision could have serious or grave consequences, it is even more important that a person understands the information relevant to that decision.""

119. In determining the level of understanding that the child needs to have to consent to PBs, Mr Hyam attached considerable importance to the decision of the Supreme Court in *Montgomery v Lancashire Health Board*. That case concerned an action in negligence brought by a mother on behalf of her child. The child was disabled as a result of complications during delivery and the mother argued that she should have been advised as to the possibility of delivery by elective caesarean. The central issue for present purposes was the information that the doctor needed to have given the patient in order to establish that she had given informed consent for the treatment.

120. Lord Kerr set out the requirements placed on a doctor in providing information on risks of injury from treatment in the following terms at para 87:

> "An adult person of sound mind is entitled to decide which, if any, of the available forms of treatment to undergo, and her consent must be obtained before treatment interfering with her bodily integrity is undertaken. The doctor is therefore under a duty to take reasonable care to ensure that the patient is aware of any material risks involved in any recommended treatment, and of any reasonable alternative or variant treatments. The test of materiality is whether, in the circumstances of the particular case, a reasonable person in the patient's position would be likely to attach significance to the risk, or the doctor is or should reasonably be aware that the particular patient would be likely to attach significance to it."

121. Mr Hyam submitted that in determining whether a child is *Gillick* competent the court should consider what would a *"reasonable person in the patient's position understand",* and in asking that question, he submitted that the "reasonable person" is one with adult knowledge.

122. Ms Morris went to the opposite extreme. She submitted that when deciding what information needs to be given to the patient and understood by them, the test is a reasonable person in that individual's position, i.e. a reasonable 12 year old (or other

age) with GD. She said that the "salient" information that needs to be provided is what that reasonable patient would attach importance to. She said that seeking consent, certainly for treatment with lifelong implications such as sterilisation will always involve some *"act of imagination"*. Many patients facing life changing treatment, such as the loss of fertility in cancer treatment or endometriosis, will not have had experience of what they are foregoing, for example, fertility. She submitted that the court ought not to be pronouncing on hypothetical cases: rather, it should or could consider the facts of one specific case as and when it arises.

123. Mr McKendrick submitted that the correct approach in deciding what information was material was to assume a reasonable child of the individual's age.

124. Mr Skinner pointed out that *Montgomery* concerned an adult and therefore the presumption of capacity in the Mental Capacity Act 2005 applied. That presumption is inapplicable in a case concerning *Gillick* competency where the very issue is whether the child is competent to make the decision. The decision in *Montgomery* was of limited assistance, therefore, in the present case. In determining competence, the child must have sufficient understanding of the factors that are not just relevant to him or her now but which on an objective basis ought to be given weight in the future.

125. In our view, the following principles can be derived from the cases to which we have referred:

126. First, the question as to whether a person under the age of 16 is *Gillick* competent to make the relevant decision will depend on the nature of the treatment proposed as well as that person's individual characteristics. The assessment is necessarily an individual one. Where the decision is significant and life changing then there is a greater onus to ensure that the child understands and is able to weigh the information, see *Re S* at para 60.

127. Secondly, however, that does not mean that it is not possible for the court to draw some lines. The Trusts themselves accept that a 7 year old being treated with PBs for precocious puberty cannot give informed consent and his or her parents must give that consent because of the young age of the child concerned and the nature of the treatment.

128. Thirdly, efforts should be made to allow the child or young person to achieve *Gillick* competency where that is possible. Clinicians should therefore work with the individual to help them understand the treatment proposed and its potential implications in order to help them achieve competence.

129. Fourthly, however, that does not mean that every individual under 16 can achieve *Gillick* competence in relation to the treatment proposed. As we discuss below, where the consequences of the treatment are profound, the benefits unclear and the long-term consequences to a material degree unknown, it may be that *Gillick* competence cannot be achieved, however much information and supportive discussion is undertaken.

130. Fifthly, in order to achieve *Gillick* competence it is important not to set the bar too high. It is not appropriate to equate the matters that a clinician needs to explain, as set out in *Montgomery*, to the matters that a child needs to understand to achieve *Gillick* competence. The consequence of Mr Hyam's approach would be significantly to raise

the bar for competence and capacity, which would be contrary both to the common law and to a child's Article 8 rights and the importance of supporting individual autonomy.

131. We adopt the language of Chadwick LJ in *Masterman-Lister v Brutton and Co (Nos 1 and 2)* [2003] 1 WLR 151: a person should be able to "*understand an explanation of that information in broad terms and simple language"*, see *Re S* at para 36. Although this was said in a case that concerned an adult's capacity, in our judgment the same approach should be applied to a case concerning *Gillick* competence. The child or young person needs to be able to demonstrate sufficient understanding of the salient facts, see *Re S* at para 60.

132. Sixthly, we agree with Mr Skinner, that in deciding what facts are salient and what level of understanding is sufficient, it is necessary to have regard to matters which are those which objectively ought to be given weight in the future although the child might be unconcerned about them now. On the facts of this case there are some obvious examples, including the impact on fertility and on future sexual functioning.

SECTION E: CONCLUSIONS

133. The principal issue before this court is in some ways a narrow one. Can a child or young person under the age of 16 achieve *Gillick* competence in respect of the decision to take PBs for GD? The legal position of 16 and 17 year olds is different, and we deal with that below.

134. The starting point is to consider the nature of the treatment proposed. The administration of PBs to people going through puberty is a very unusual treatment for the following reasons. Firstly, there is real uncertainty over the short and long-term consequences of the treatment with very limited evidence as to its efficacy, or indeed quite what it is seeking to achieve. This means it is, in our view, properly described as experimental treatment. Secondly, there is a lack of clarity over the purpose of the treatment: in particular, whether it provides a "pause to think" in a "hormone neutral" state or is a treatment to limit the effects of puberty, and thus the need for greater surgical and chemical intervention later, as referred to in the Health Research Authority report. Thirdly, the consequences of the treatment are highly complex and potentially lifelong and life changing in the most fundamental way imaginable. The treatment goes to the heart of an individual's identity, and is thus, quite possibly, unique as a medical treatment.

135. Furthermore, the nature and the purpose of the medical intervention must be considered. The condition being treated, GD, has no direct physical manifestation. In contrast, the treatment provided for that condition has direct physical consequences, as the medication is intended to and does prevent the physical changes that would otherwise occur within the body, in particular by stopping the biological and physical development that would otherwise take place at that age. There is also an issue as to whether GD is properly categorised as a psychological condition, as the DSM-5 appears to do, although we recognise there are those who would not wish to see the condition categorised in that way. Be that as it may, in our judgment for the reasons already identified, the clinical intervention we are concerned with here is different in kind to other treatments or clinical interventions. In other cases, medical treatment is used to remedy, or alleviate the symptoms of, a diagnosed physical or mental condition, and

the effects of that treatment are direct and usually apparent. The position in relation to puberty blockers would not seem to reflect that description.

136. Indeed the consequences which flow from taking PBs for GD and which must be considered in the context of informed consent, fall into two (interlinking) categories. Those that are a direct result of taking the PBs themselves, and those that follow on from progression to Stage 2, that is taking cross-sex hormones. The defendant and the Trusts argue that Stage 1 and 2 are entirely separate; a child can stop taking PBs at any time and that Stage 1 is fully reversible. It is said therefore the child needs only to understand the implications of taking PBs alone to be *Gillick* competent. In our view this does not reflect the reality. The evidence shows that the vast majority of children who take PBs move on to take cross-sex hormones, that Stages 1 and 2 are two stages of one clinical pathway and once on that pathway it is extremely rare for a child to get off it.

137. The defendant argues that PBs give the child "time to think", that is, to decide whether or not to proceed to cross-sex hormones or to revert to development in the natal sex. But the use of puberty blockers is not itself a neutral process by which time stands still for the child on PBs, whether physically or psychologically. PBs prevent the child going through puberty in the normal biological process. As a minimum it seems to us that this means that the child is not undergoing the physical and consequential psychological changes which would contribute to the understanding of a person's identity. There is an argument that for some children at least, this may confirm the child's chosen gender identity at the time they begin the use of puberty blockers and to that extent, confirm their GD and increase the likelihood of some children moving on to cross-sex hormones. Indeed, the statistical correlation between the use of puberty blockers and cross-sex hormones supports the case that it is appropriate to view PBs as a stepping stone to cross-sex hormones.

138. It follows that to achieve *Gillick* competence the child or young person would have to understand not simply the implications of taking PBs but those of progressing to cross-sex hormones. The relevant information therefore that a child would have to understand, retain and weigh up in order to have the requisite competence in relation to PBs, would be as follows: (i) the immediate consequences of the treatment in physical and psychological terms; (ii) the fact that the vast majority of patients taking PBs go on to CSH and therefore that s/he is on a pathway to much greater medical interventions; (iii) the relationship between taking CSH and subsequent surgery, with the implications of such surgery; (iv) the fact that CSH may well lead to a loss of fertility; (v) the impact of CSH on sexual function; (vi) the impact that taking this step on this treatment pathway may have on future and life-long relationships; (vii) the unknown physical consequences of taking PBs; and (viii) the fact that the evidence base for this treatment is as yet highly uncertain.

139. It will obviously be difficult for a child under 16 to understand and weigh up such information. Although a child may understand the concept of the loss of fertility for example, this is not the same as understanding how this will affect their adult life. A child's attitude to having biological children and their understanding of what this really means, is likely to change between childhood and adulthood. For many children, certainly younger children, and some as young as 10 and just entering puberty, it will not be possible to conceptualise what not being able to give birth to children (or conceive children with their own sperm) would mean in adult life. Similarly, the

meaning of sexual fulfilment, and what the implications of treatment may be for this in the future, will be impossible for many children to comprehend.

140. Ms Morris submitted that many decisions about complex and long-lasting medical treatment will involve the patient having, to some degree, to imagine themselves into an uncertain future of which they have no experience. However, for the reasons that we have explained in para 135 above we consider the treatment in this case to be in entirely different territory from the type of medical treatment which is normally being considered.

141. Some of the children and young people who have been treated at GIDS say in their witness statements that the thought of sex disgusted them, or they did not really think about fertility. These normal reactions do not detract from the difficulties surrounding consent and treatment with PBs. That adolescents find it difficult to contemplate or comprehend what their life will be like as adults and that they do not always consider the longer-term consequences of their actions is perhaps a statement of the obvious.

142. These various difficulties are compounded by the particular difficulties prevalent in the cohort of children treated at GIDS. On the defendant's case, they suffer considerable psychological distress by reason of their GD and are highly vulnerable. In those circumstances, the consequences of taking PBs on their fertility for example, or on their sexual life, may be viewed as a relatively small price to pay for what may be perceived as a solution to their immediate and real psychological distress. It would not follow however that their weighing of risks and benefits when they might start taking PBs would prevail in the longer-term.

143. The difficulty of achieving informed consent in these circumstances is further exacerbated by the lack of evidence as to the efficacy of PBs in treating GD and the long-term outcomes of taking it. We entirely accept that the fact that a treatment is experimental, or that the long-term outcomes are not yet known, does not of itself prevent informed consent being given. Otherwise no experimental treatment could ever be consented to. However, the combination here of lifelong and life changing treatment being given to children, with very limited knowledge of the degree to which it will or will not benefit them, is one that gives significant grounds for concern.

144. We do not think that the answer to this case is simply to give the child more, and more detailed, information. The issue in our view is that in many cases, however much information the child is given as to long-term consequences, s/he will not be able to weigh up the implications of the treatment to a sufficient degree. There is no age appropriate way to explain to many of these children what losing their fertility or full sexual function may mean to them in later years.

145. *Gillick* makes clear that any decision is treatment and person specific. However, for the reasons that we have set out above, we think that it is appropriate in this case to give clear guidance as to the application of the *Gillick* tests to the treatment and cohort of children in question. The conclusion we have reached is that it is highly unlikely that a child aged 13 or under would ever be *Gillick* competent to give consent to being treated with PBs. In respect of children aged 14 and 15, we are also very doubtful that a child of this age could understand the long-term risks and consequences of treatment in such a way as to have sufficient understanding to give consent. However, plainly the

increased maturity of the child means that there is more possibility of achieving competence at the older age.

146. In respect of a young person aged 16 or over, the legal position is different. There is a presumption of capacity under section 8 of the Family Law Reform Act 1969. As is explained in *Re W*, that does not mean that a court cannot protect the child under its inherent jurisdiction if it considers the treatment not to be in the child's best interests. However, so long as the young person has mental capacity and the clinicians consider the treatment is in his/her best interests, then absent a possible dispute with the parents, the court generally has no role. We do not consider that the court can somehow adopt an intrusive jurisdiction in relation to one form of clinical intervention for which no clear legal basis has been established.

147. We do however recognise that in the light of the evidence that has emerged, and the terms of this judgment, clinicians may well consider that it is not appropriate to move to treatment, such as PBs or CSH, without the involvement of the court. We consider that it would be appropriate for clinicians to involve the court in any case where there may be any doubt as to whether the long-term best interests of a 16 or 17 year old would be served by the clinical interventions at issue in this case.

148. We express that view for these reasons. First, the clinical interventions involve significant, long-term and, in part, potentially irreversible long-term physical, and psychological consequences for young persons. The treatment involved is truly life changing, going as it does to the very heart of an individual's identity. Secondly, at present, it is right to call the treatment experimental or innovative in the sense that there are currently limited studies/evidence of the efficacy or long-term effects of the treatment.

149. The position of the defendant and the Trusts is that they consider it would be an intrusion into the child or young person's autonomy if a decision about treatment with PBs were to be made by the court not by the patient. They are concerned about the use of NHS and court resources if these decisions have to be made by the court. We do not consider that this is the correct approach. In principle, a young person's autonomy should be protected and supported; however, it is the role of the court to protect children, and particularly a vulnerable child's best interests. The decisions in respect of PBs have lifelong and life-changing consequences for the children. Apart perhaps from life-saving treatment, there will be no more profound medical decisions for children than whether to start on this treatment pathway. In those circumstances we consider that it is appropriate that the court should determine whether it is in the child's best interests to take PBs. There is a real benefit in the court, almost certainly with a child's guardian appointed, having oversight over the decision. In any case, under the inherent jurisdiction concerning medical treatment for those under the age of 18, there is likely to be a conflict between the support of autonomy and the protective role of the court. As we have explained above, we consider this treatment to be one where the protective role of the court is appropriate.

150. The claimants' alternative ground is that the information provided by the defendant and the Trusts is inadequate to form the basis of informed consent. We accept that the defendant and the Trusts have in their written information, to children, young people and their parents and carers, tried hard to explain the potential consequences of PBs, including that of moving on to CSH, and to give full information. They have also

attempted to do this in an age appropriate manner. The problem is not the information given, but the ability of the children and young people, to understand and most importantly weigh up that information. The approach of the defendant appears to have been to work on the assumption that if they give enough information and discuss it sufficiently often with the children, they will be able to achieve *Gillick* competency. As we have explained above, we do not think that this assumption is correct.

OVERALL CONCLUSION

151. A child under 16 may only consent to the use of medication intended to suppress puberty where he or she is competent to understand the nature of the treatment. That includes an understanding of the immediate and long-term consequences of the treatment, the limited evidence available as to its efficacy or purpose, the fact that the vast majority of patients proceed to the use of cross-sex hormones, and its potential life changing consequences for a child. There will be enormous difficulties in a child under 16 understanding and weighing up this information and deciding whether to consent to the use of puberty blocking medication. It is highly unlikely that a child aged 13 or under would be competent to give consent to the administration of puberty blockers. It is doubtful that a child aged 14 or 15 could understand and weigh the long-term risks and consequences of the administration of puberty blockers.

152. In respect of young persons aged 16 and over, the legal position is that there is a presumption that they have the ability to consent to medical treatment. Given the long-term consequences of the clinical interventions at issue in this case, and given that the treatment is as yet innovative and experimental, we recognise that clinicians may well regard these as cases where the authorisation of the court should be sought prior to commencing the clinical treatment.

153. We have granted a declaration to reflect the terms of this judgment.

No. 22-11707

UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT

PAUL A. EKNES-TUCKER, et al.,
Plaintiffs-Appellees,

&

UNITED STATES OF AMERICA
Intervenor-Plaintiff-Appellee,

v.

GOVERNOR OF THE STATE OF ALABAMA, et al.,
Defendants-Appellants.

On Appeal from the United States District Court
for the Middle District of Alabama
Case No. 2:22-cv-184-LCB

APPELLANTS' APPENDIX VOLUME VII OF XIII

Christopher Mills
SPERO LAW LLC
557 East Bay St.,
#22251
Charleston, SC 29451
(843) 606-0640
cmills@spero.law

Steve Marshall
Attorney General
Edmund G. LaCour Jr.
Solicitor General
A. Barrett Bowdre
Thomas A. Wilson
Deputy Solicitors General
James W. Davis
Deputy Attorney General
Benjamin M. Seiss
Assistant Attorney General
STATE OF ALABAMA
OFFICE OF THE ATTORNEY GENERAL
501 Washington Ave.
Montgomery, AL 36130
(334) 242-7300
Edmund.LaCour@AlabamaAG.gov

July 5, 2022

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Decision Memo for Dysphoria and (CAG-00446N)

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Decision Summary

DEFENDANT'S EXHIBIT 16

Currently, the local Medicare Administrative Contractors (MACs) determine coverage of gender reassignment surgery on a case-by-case basis. We received a complete, formal request to make a national coverage determination on surgical remedies for gender identity disorder (GID), now known as gender dysphoria. The Centers for Medicare & Medicaid Services (CMS) is not issuing a National Coverage Determination (NCD) at this time on gender reassignment surgery for Medicare beneficiaries with gender dysphoria because the clinical evidence is inconclusive for the Medicare population.

In the absence of a NCD, coverage determinations for gender reassignment surgery, under section 1862(a)(1)(A) of the Social Security Act (the Act) and any other relevant statutory requirements, will continue to be made by the local MACs on a case-by-case basis. To clarify further, the result of this decision is not national non-coverage rather it is that no national policy will be put in place for the Medicare program. In the absence of a national policy, MACs will make the determination of whether or not to cover gender reassignment surgery based on whether gender reassignment surgery is reasonable and necessary for the individual beneficiary after considering the individual's specific circumstances. For Medicare beneficiaries enrolled in Medicare Advantage (MA) plans, the initial determination of whether or not surgery is reasonable and necessary will be made by the MA plans.

Consistent with the request CMS received, the focus of this National Coverage Analysis (NCA) was gender reassignment surgery. Specific types of surgeries were not individually assessed. We did not analyze the clinical evidence for counseling or hormone therapy treatments for gender dysphoria. As requested by several public commenters, we have modified our final decision memorandum to remove language that was beyond the scope of the specific request. We are not making a national coverage determination related to counseling, hormone therapy treatments, or any other potential treatment for gender dysphoria.

While we are not issuing a NCD, CMS encourages robust clinical studies that will fill the evidence gaps and help inform which patients are most likely to achieve improved health outcomes with gender reassignment surgery, which types of surgery are most appropriate, and what types of physician criteria and care setting(s) are needed to ensure that patients achieve improved health outcomes.

Decision Memo

To: Administrative File: CAG #00446N

From: Tamara Syrek Jensen, JD
Director, Coverage and Analysis Group

Joseph Chin, MD, MS
Deputy Director, Coverage and Analysis Group

James Rollins, MD, PhD
Director, Division of Items and Devices

Elizabeth Koller, MD
Lead Medical Officer

Linda Gousis, JD
Lead Analyst

Katherine Szarama, PhD
Analyst

Subject: Final Decision Memorandum on Gender Reassignment Surgery for Medicare Beneficiaries with Gender Dysphoria

Date: August 30, 2016

I. Decision

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II. Background

Below is a list of acronyms used throughout this document.

AHRQ - Agency for Healthcare Research and Quality
AIDS - Acquired Immune Deficiency Syndrome
ANOVA - Analysis of Variance

APA - American Psychiatric Association
APGAR - Adaptability, Partnership Growth, Affection, and Resolve test
BIQ - Body Image Questionnaire
BSRI - Bem Sex Role Inventory
CCEI - Crown Crips Experimental Index
CDC – Centers for Disease Control
CHIS - California Health Interview Survey
CI - Confidence Interval
CMS - Centers for Medicare & Medicaid Services
DAB - Departmental Appeals Board
DSM - Diagnostic and Statistical Manual of Mental Disorders
EMBASE - Exerpta Medica dataBASE
FBeK - Fragebogen zur Beurteilung des eigenen Korpers
FDA - Food and Drug Administration
FPI-R - Freiburg Personality Inventory
FSFI - Female Sexual Function Index
GAF - Global Assessment of Functioning
GID - Gender Identity Disorder
GIS - Gender Identity Trait Scale
GRS - Gender Reassignment Surgery
GSI - Global Severity Indices
HADS - Hospital Anxiety Depression Scale
HHS - U.S. Department of Health and Human Services
HIV - Human Immunodeficiency Virus
IIP - Inventory of Interpersonal Problems
IOM - Institute of Medicine
KHQ - King's Health Questionnaire
LGB - Lesbian, Gay, and Bisexual
LGBT - Lesbian, Gay, Bisexual, and Transgender
MAC - Medicare Administrative Contractor
MMPI - Minnesota Multiphasic Personality Inventory
NCA - National Coverage Analysis
NCD - National Coverage Determination
NICE - National Institute for Health Care Excellence
NIH - National Institutes of Health
NZHTA - New Zealand Health Technology Assessment
PIT - Psychological Integration of Trans-sexuals
QOL - Quality of Life
S.D. - Standard Deviation
SADS - Social Anxiety Depression Scale
SCL-90R - Symptom Check List 90-Revised
SDPE - Scale for Depersonalization Experiences
SES - Self Esteem Scale
SF - Short Form
SMR - Standardized Mortality Ratio SOC – Standards of Care
STAI-X1 - Spielberger State and Trait Anxiety Questionnaire
STAI-X2 - Spielberger State and Trait Anxiety Questionnaire
TSCS - Tennessee Self-Concept Scale
U.S. - United States
VAS - Visual Analog Scale
WHOQOL-BREF - World Health Organization Quality of Life - Abbreviated version of the WHOQOL-100
WPATH - World Professional Association for Transgender Health

A. Diagnostic Criteria

The criteria for gender dysphoria or spectrum of related conditions as defined by the American Psychiatric Association (APA) in the Diagnostic and Statistical Manual of Mental Disorders (DSM) has changed over time (See Appendix A).

Gender dysphoria (previously known as gender identity disorder) is a classification used to describe persons who experience significant discontent with their biological sex and/or gender assigned at birth. Although there are other therapeutic options for gender dysphoria, consistent with the NCA request, this decision only focuses on gender reassignment surgery.

B. Prevalence of Transgender Individuals

For estimates of transgender individuals in the U.S., we looked at several studies.

The Massachusetts Behavior Risk Factor Surveillance Survey (via telephone) (2007 and 2009) identified 0.5% individuals as transgender (Conron et al., 2012).

Derivative data obtained from the 2004 California Lesbian Gay Bisexual and Transgender (LGBT) Tobacco Survey (via telephone) and the 2009 California Health Interview Survey (CHIS) (via telephone) suggested the LGB population constitutes 3.2% of the California population and that transgender subjects constitute approximately 2% of the California LGBT population and 0.06% of the overall California population (Bye et al., 2005; CHIS 2009; Gates, 2011).

Most recently, the Williams Institute published a report that utilized data from the Centers for Disease Control's (CDC) Behavioral Risk Factor Surveillance System (BRFSS). Overall, they found that 0.6% or 1.4 million U.S. adults identify as transgender. The report further estimated 0.7% of adults between the ages of 18-25 identify as transgender, 0.6% of adults between the ages of 25-65 identify as transgender, and 0.5% of adults age 65 or older identify as transgender (Flores et al., 2016).

In a recent review of Medicare claims data, CMS estimated that in calendar year 2013 there were at least 4,098 transgender beneficiaries (less than 1% of the Medicare population) who utilized services paid for by Medicare, of which 90% had confirmatory diagnosis, billing codes, or evidence of a hormone therapy prescription. The Medicare transgender population is racially and ethnically diverse (e.g., 74% White, 15% African American) and spans the entire country. Nearly 80% of transgender beneficiaries are under age 65, including approximately 23% ages 45-54. (CMS Office of Minority Health 2015).

For international comparison purposes, recent estimates of transgender populations in other countries are similar to those in the United States. New Zealand researchers, using passport data, reported a prevalence of 0.0275% for male-to-female adults and 0.0044% female-to-male adults (6:1 ratio) (Veale, 2008). Researchers from a centers of transgender treatment and reassignment surgery in Belgium conducted a survey of regional plastic surgeons and reported a prevalence of 0.008% male-to-female and 0.003% female-to-male (ratio 2.7:1) surgically reassigned transsexuals in Belgium (De Cuypere et al., 2007). Swedish researchers, using national mandatory reporting data on those requesting reassignment surgery, reported secular changes over time in that the number of completed reassignment surgeries per application increased markedly in the 1990s; the male-to- female/female-to-male sex ratio changed from 1:1 to 2:1; the age of male-to-female and female-to-male applicants was initially similar, but increased by eight years for male-to-female applicants; and the proportion of foreign born applicants increased (Olsson and Moller 2003).

III. History of Medicare Coverage

Date	Action
August 1, 1989	CMS published the initial NCD, titled "140.3, Transsexual Surgery" in the Federal Register. (54 Fed. Reg. 34,555, 34,572)
May 30, 2014	The HHS Departmental Appeals Board (DAB) determined that the NCD denying coverage for all transsexual surgery was not valid. As a result, MACs determined coverage on a case-by-case basis.

CMS does not currently have a NCD on gender reassignment surgery.

A. Current Request

On December 3, 2015, CMS accepted a formal complete request from a beneficiary to initiate a NCA for gender reassignment surgery.

CMS opened this National Coverage Analysis (NCA) to thoroughly review the evidence to determine whether or not gender reassignment surgery may be covered nationally under the Medicare program.

B. Benefit Category

Medicare is a defined benefit program. For an item or service to be covered by the Medicare program, it must fall within one of the statutorily defined benefit categories as outlined in the Act. For gender reassignment surgery, the following are statutes are applicable to coverage:

Under §1812 (Scope of Part A) Under §1832 (Scope of Part B)
Under §1861(s) (Definition of Medical and Other Health Services)
Under §1861(s)(1) (Physicians' Services)

This may not be an exhaustive list of all applicable Medicare benefit categories for this item or service.

IV. Timeline of Recent Activities

Timeline of Medicare Coverage Policy Actions for Gender Reassignment Surgery

Date	Action
December 3, 2015	CMS accepts an external request to open a NCD. A tracking sheet was posted on the web site and the initial 30 day public comment period commenced.
January 2, 2016	Initial comment period closed. CMS received 103 comments.
June 2, 2016	Proposed Decision Memorandum posted on the web site and the final 30 day public comment period commenced.
July 2, 2016	Final comment period closed. CMS received 45 comments.

V. FDA Status

Surgical procedures per se are not subject to the Food and Drug Administration's (FDA) approval.

Inflatable penile prosthetic devices, rigid penile implants, testicular prosthetic implants, and breast implants have been approved and/or cleared by the FDA.

VI. General Methodological Principles

In general, when making national coverage determinations, CMS evaluates relevant clinical evidence to determine whether or not the evidence is of sufficient quality to support a finding that an item or service is reasonable and necessary for the diagnosis or treatment of illness or injury or to improve the functioning of a malformed body member. (§ 1862 (a)(1)(A)). The evidence may consist of external technology assessments, internal review of published and unpublished studies, recommendations from the Medicare Evidence Development & Coverage Advisory Committee (MEDCAC), evidence-based guidelines, professional society position statements, expert opinion, and public comments.

The overall objective for the critical appraisal of the evidence is to determine to what degree we are confident that: 1) specific clinical question relevant to the coverage request can be answered conclusively; and 2) the extent to which we are confident that the intervention will improve health outcomes for patients.

A detailed account of the methodological principles of study design the agency staff utilizes to assess the relevant literature on a therapeutic or diagnostic item or service for specific conditions can be found in Appendix B. In general, features of clinical studies that improve quality and decrease bias include the selection of a clinically relevant cohort, the consistent use of a single good reference standard, blinding of readers of the index test, and reference test results.

VII. Evidence

A. Introduction

Below is a summary of the evidence we considered during our review, primarily articles about clinical trials published in peer- reviewed medical journals. We also considered articles cited by the requestor, articles identified in public comments, as well as those found by a CMS literature review. Citations are detailed below.

B. Literature Search Methods

CMS staff extensively searched for primary studies for gender dysphoria. The emphasis focused less on specific surgical techniques and more on functional outcomes unless specific techniques altered those types of outcomes.

The reviewed evidence included articles obtained by searching literature databases and technology review databases from PubMed (1965 to current date), EMBASE, the Agency for Healthcare Research and Quality (AHRQ), the Blue Cross/Blue Shield Technology Evaluation Center, the Cochrane Collection, the Institute of Medicine, and the National Institute for Health and Care Excellence (NICE) as well as the source material for commentary, guidelines, and formal evidence-based documents published by professional societies. Systematic reviews were used to help locate some of the more obscure publications and abstracts.

Keywords used in the search included: Trans-sexual, transgender, gender identity disorder (syndrome), gender

dysphoria and/or hormone therapy, gender surgery/ genital surgery, gender reassignment (surgery), sex reassignment (surgery) and/or quality of life, satisfaction-regret, psychological function (diagnosis of mood disorders, psychopathology, personality disorders), suicide (attempts), mortality, and adverse events-reoperations. After the identification of germane publications, CMS also conducted searches on the specific psychometric instruments used by investigators.

Psychometric instruments are scientific tools used to measure individuals' mental capabilities and behavioral style. They are usually in the form of questionnaires that numerically capture responses. These tools are used to create a psychological profile that can address questions about a person's knowledge, abilities, attitudes and personality traits. In the evaluation of patients with gender dysphoria, it is important that both validity and reliability be assured in the construction of the tool (validity refers to how well the tool actually measures what it was designed to measure, or how well it reflects the reality it claims to represent, while reliability refers to how accurately results of the tool would be replicated in a second identical piece of research). Reliability and validity are important because when evaluating patients with gender dysphoria most of the variables of interest (e.g., satisfaction, anxiety, depression) are latent in nature (not directly observed but are rather inferred) and difficult to quantify objectively.

Studies with robust study designs and larger, defined patient populations assessed with objective endpoints or validated test instruments were given greater weight than small, pilot studies. Reduced consideration was given to studies that were underpowered for the assessment of differences or changes known to be clinically important. Studies with fewer than 30 patients were reviewed and delineated, but excluded from the major analytic framework. Oral presentations, unpublished white papers, and case reports were excluded. Publications in languages other than English were excluded. The CMS initial internal search for the proposed decision memorandum was limited to articles published prior to March 21, 2016. The CMS internal search for the final decision memorandum continued through articles published prior to July 22, 2016.

Included studies were limited to those with adult subjects. Review and discussion of the management of children and adolescents with the additional considerations of induced pubertal delay are outside the scope of this NCD. In cases where the same population was studied for multiple reasons or where the patient population was expanded over time, the latest and/or most germane sections of the publications were analyzed. The excluded duplicative publications are delineated.

CMS also searched Clinicaltrials.gov to identify relevant clinical trials. CMS looked at trial status including early termination, completed, ongoing with sponsor update, and ongoing with estimated date of completion. Publications on completed trials were sought. For this final decision, CMS also reviewed all evidence submitted via public comment.

C. Discussion of Evidence

The development of an assessment in support of Medicare coverage determinations is based on the same general question for almost all national coverage analyses (NCAs): "Is the evidence sufficient to conclude that the application of the item or service under study will improve health outcomes for Medicare patients?" For this specific NCA, CMS is interested in answering the following question:

Is there sufficient evidence to conclude that gender reassignment surgery improves health outcomes for Medicare beneficiaries with gender dysphoria?

The evidence reviewed is directed towards answering this question.

1. Internal Technology Assessment

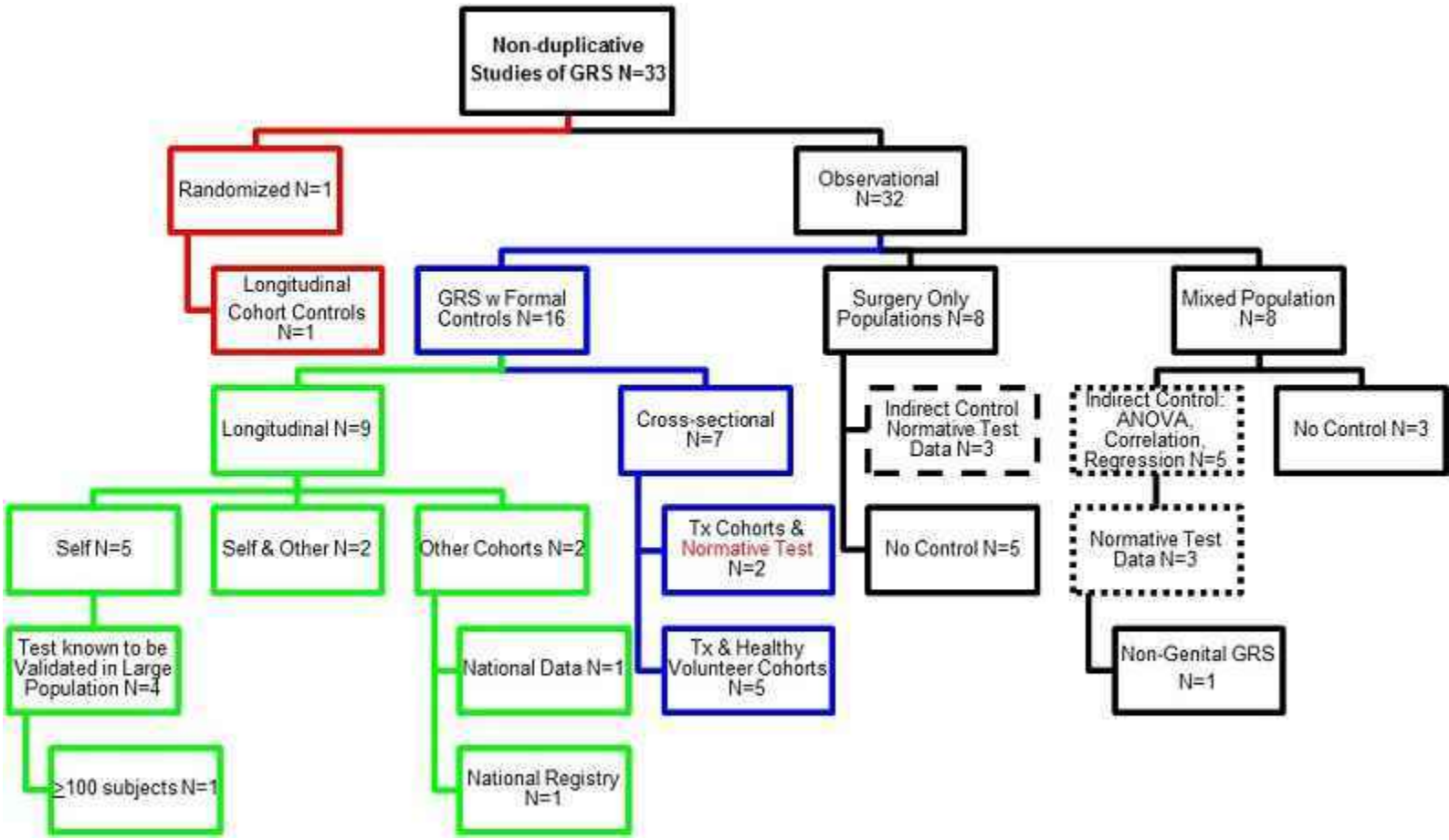
CMS conducted an extensive literature search on gender reassignment related surgical procedures and on facets of gender dysphoria that provide context for this analysis. The latter includes medical and environmental conditions.

CMS identified numerous publications related to gender reassignment surgery. A large number of these were case reports, case series with or without descriptive statistics, or studies with population sizes too small to conduct standard parametric statistical analyses. Others addressed issues of surgical technique.

CMS identified and described 36 publications on gender reassignment surgery that included health outcomes. Because the various investigators at a site sometimes conducted serial studies on ever-enlarging cohort populations, studied sub-populations, studied different outcomes, or used different tools to study the same outcomes, not all study populations were unique. To reduce bias from over-lapping populations, only the latest or most germane publication(s) were described. Subsumed publications were delineated.

Of these 36 publications, two publications used different assessment tools on the same population, and, so for the purposes of evaluation, were classified as one study (Udeze et al., 2008; Megeri and Khoosal, 2007). A total of 33 studies were reviewed (See Figure 1). Appendices C, D, and F include more detail of each study. The publications covered a time span from 1979 to 2015. Over half of the studies were published after 2005.

Figure 1. Studies of Gender Reassignment Surgery (GRS)



ANOVA=Analysis of Variance Normative=Psychometric Tests with known normative for large populations

Figure 1 Legend: The studies in Figure 1 are categorized into three groups. The first group, depicted by the colored

boxes (red, blue, and green), had explicit controls. There was a single randomized study. The remainder in the first group were observational studies. These were subdivided into longitudinal studies and cross-sectional studies. The second group, depicted by black boxes (starting with the surgery only population box) consisted of surgical series. The third group, depicted by black boxes (starting with mixed population), was composed of patients whose treatment could involve a variety of therapeutic interventions, but who were not stratified by that treatment.

When looking at the totality of studies, the 33 studies could be characterized by the following research design groups:

a. Observational, mixed population of surgical and non-surgical patients without stratification

Asscheman H, Giltay EJ, Megens JA, de Ronde WP, van Trotsenburg MA, Gooren LJ. A long-term follow-up study of mortality in transsexuals receiving treatment with cross-sex hormones. Eur J Endocrinol. 2011 Apr;164(4):635-42. Epub 2011 Jan 25.

Asscheman et al. conducted a retrospective, non-blinded, observational study of mortality using a longitudinal design to assess a mixed population treated with hormones, as well as, reassignment surgery in comparison to a population-based cohort. The study was not designed to assess the specific impact of gender reassignment surgery on clinical outcomes.

The investigators assessed mortality in patients who (a) were from a single-center, unspecified, Dutch university specialty clinic, (b) had initiated cross-sex hormone treatment prior to July 1, 1997, and (c) had been followed (with or without continued hormone treatment) by the clinic for at least one year or had expired during the first year of treatment. The National Civil Record Registry (Gemeentelijke Basis Administratie) was used to identify/confirm deaths of clinic patients. Information on the types or hormones used was extracted from clinic records, and information on the causation of death was extracted from medical records or obtained from family physicians. Mortality data for the general population were obtained through the Central Bureau of Statistics of the Netherlands (Centraal Bureau voor Statistiek). Mortality data from Acquired Immune Deficiency Syndrome (AIDS) and substance abuse were extracted from selected Statistics Netherlands reports. The gender of the general Dutch population comparator group was the natal sex of the respective gender dysphoric patient groups.

A total of 1,331 patients who met the hormone treatment requirements were identified (365 female-to-male [27.4%]; 966 male- to-female [72.6%]; ratio 1:2.6). Of these, 1,177 (88.4%) underwent reassignment surgery (343 [94.0% of female-to-male entrants]; 834 [86.3% of male-to-female entrants]; ratio difference 1:2.4 with a p-value $p<0.0001$). Later calculations did not distinguish between those with hormone therapy alone versus those with hormone therapy plus reassignment surgery. The mean age at the time of hormone initiation in female-to-male and male-to-female patients was 26.1±7.6 (range 16–56) years and 31.4±11.4 (range 16–76) years respectively, although the male-to-female subjects were relatively older ($p<0.001$). The mean duration of hormone therapy in female-to-male and male-to-female patients was 18.8±6.3 and 19.4±7.7 years respectively.

There were a total of 134 deaths in the clinic population using hormone therapy with or without surgical reassignment. Of these patients, 12 (3.3%) of the 365 female-to-male patients and 122 (12.6%) of the 966 male-to-female patients died. All-cause mortality for this mixed population was 51% higher and statistically significant (Standardized Mortality Ratio [SMR] 95% confidence interval [CI]) 1.47-1.55) for males-to-females when compared to males in the general Dutch population. The increase in all-cause mortality (12%) for females-to-males when compared to females in the general Dutch population was not statistically significant (95% CI 0.87-1.42).

Ischemic heart disease was a major disparate contributor to excess mortality in male-to-female patients but only in older patients (n=18, SMR 1.64 [95% CI 1.43-1.87]), mean age [range]: 59.7 [42-79] years. Current use of a

particular type of estrogen, ethinyl estradiol, was found to contribute to death from myocardial infarction or stroke (Adjusted Hazard Ratio 3.12 [95% CI 1.28-7.63], p=0.01). There was a small, but statistically significant increase in lung cancer that was thought to possibly be related to higher rates of smoking in this cohort.

Other contributors to the mortality difference between male-to-female patients and the Dutch population at large were completed suicide (n=17, SMR 5.70 [95% CI 4.93-6.54]), AIDS (n=16, SMR 30.20 [95% CI 26.0-34.7]), and illicit drug use (n=5, SMR 13.20 [95% CI 9.70-17.6]). An additional major contributor was "unknown cause" (n=21, SMR 4.00 [95% CI 3.52-4.51]). Of the 17 male-to-female hormone treated patients who committed suicide, 13 (76.5%) had received prior psychiatric treatment and six (35.3%) had not undergone reassignment surgery because of concerns about mental health stability.

Overall mortality, and specifically breast cancer and cardiovascular disease, were not increased in the hormone-treated female-to-male patients. Asscheman et al. reported an elevated SMR for illicit drug use (n=1, SMR 25 [6.00-32.5]). This was the cause of one of the 12 deaths in the cohort.

This study subsumes earlier publications on mortality (Asscheman et al. 1989 [n=425]; Van Kesteren et al. 1997 [n=816]).

Gómez-Gil E, Zubiaurre-Elorza L, Esteva I, Guillamon A, Godás T, Cruz Almaraz M, Halperin I, Salamero M. Hormone-treated transsexuals report less social distress, anxiety and depression. Psychoneuroendocrinology. 2012 May;37(5):662-70. Epub 2011 Sep 19.

Gómez-Gil et al. conducted a prospective, non-blinded observational study using a cross-sectional design and non-specific psychiatric distress tools in Spain. The investigators assessed anxiety and depression in patients with gender dysphoria who attended a single-center specialty clinic with comprehensive endocrine, psychological, psychiatric, and surgical care. The clinic employed World Professional Association for Transgender Health (WPATH) guidelines. Patients were required to have met diagnostic criteria during evaluations by 2 experts. Investigators used the Hospital Anxiety and Depression Scale (HADS) and the Social Anxiety and Distress Scale (SADS) instruments. The SADS total score ranges from 0 to 28, with higher scores indicative of more anxiety. English language normative values are 9.1±8.0. HAD-anxiety and HAD-depression total score ranges from 0 to 21, with higher scores indicative of more pathology. Scores less than 8 are normal. ANOVA was used to explore effects of hormone and surgical treatment.

Of the 200 consecutively selected patients recruited, 187 (93.5% of recruited) were included in the final study population. Of the final study population, 74 (39.6%) were female-to-male patients; 113 (60.4%) were male-to-female patients (ratio 1:1.5); and 120 (64.2%) were using hormones. Of those using hormones, 36 (30.0%) were female-to-male; 84 (70.0%) were male-to-female (ratio 1:2.3). The mean age was 29.87±9.15 years (range 15-61). The current age of patients using hormones was 33.6±9.1 years (n=120) and older than the age of patients without hormone treatment (25.9±7.5) (p=0.001). The age at hormone initiation, however, was 24.6±8.1 years.

Of those who had undergone reassignment surgery, 29 (36.7%) were female-to-male; 50 (63.3%) were male-to-female (ratio 1:1.7). The number of patients not on hormones and who had undergone at least one gender-related surgical procedure (genital or non-genital) was small (n=2). The number of female-to-male patients on hormones who had undergone such surgery (mastectomy, hysterectomy, and/or phalloplasty) was 28 (77.8%). The number of male-to-female patients on hormones who had undergone such surgery (mammoplasty, facial feminization, buttock feminization, vaginoplasty, orchiectomy, and/or vocal feminization (thyroid chondroplasty) was 49 (58.3%).

Analysis of the data revealed that although the mean scores HAD-Anxiety, HAD-Depression, and SADS were statistically lower (better) in those on hormone therapy than in those not on hormone therapy, the mean scores for

HAD-Depression and SADS were in the normal range for gender dysphoric patients not using hormones. The HAD-Anxiety score was 9 in transsexuals without hormone treatment and 6.4 in transsexuals with hormone treatment. The mean scores for HAD-Anxiety, HAD- Depression, and SADS were in the normal range for gender dysphoric patients using hormones. ANOVA revealed that results did not differ by whether the patient had undergone a gender related surgical procedure or not.

Gómez-Gil E, Zubiaurre-Elorza L, de Antonio I, Guillamon A, Salamero M. Determinants of quality of life in Spanish transsexuals attending a gender unit before genital sex reassignment surgery. Qual Life Res. 2014 Mar;23(2):669-76. Epub 2013 Aug 13.

Gómez-Gil et al. conducted a prospective, non-blinded observational study using a non-specific quality of life tool. There were no formal controls for this mixed population ± non-genital reassignment surgery undergoing various stages of treatment.

The investigators assessed quality of life in the context of culture in patients with gender dysphoria who were from a single-center (Barcelona, Spain), specialty and gender identity clinic. The clinic used WPATH guidelines. Patients were required to have met diagnostic criteria during evaluations by both a psychologist and psychiatrist. Patients could have undergone non-genital surgeries, but not genital reassignment surgeries (e.g., orchiectomy, vaginoplasty, or phalloplasty). The Spanish version of the World Health Organization Quality of Life-Abbreviated version of the WHOQOL-100 (WHOQOL- BREF) was used to evaluate quality of life, which has 4 domains (environmental, physical, psychological, and social) and 2 general questions. Family dynamics were assessed with the Spanish version of the Family Adaptability, Partnership Growth, Affection, and Resolve (APGAR) test. Regression analysis was used to explore effects of surgical treatment.

All consecutive patients presenting at the clinic (277) were recruited and, 260 (93.9%) agreed to participate. Of this number, 59 of these were excluded for incomplete questionnaires, 8 were excluded for prior genital reassignment surgery, and 193 were included in the study (the mean age of this group was 31.2±9.9 years (range 16-67). Of these, 74 (38.3%) were female-to-male patients; 119 (61.7%) were male-to-female patients (ratio1:1.6). Of these, 120 (62.2%) were on hormone therapy; 29 (39.2%) of female-to-male patients had undergone at least 1 non-genital, surgical procedure (hysterectomy n=19 (25.7%); mastectomy n=29 (39.2%)); 51 (42.9%) of male-to-female patients had undergone at least one non-genital surgical procedure with mammoplasty augmentation being the most common procedure, n=47 (39.5%), followed by facial feminization, n=11 (9.2%), buttocks feminization, n=9 (7.6%), and vocal feminization (thyroid chondroplasty), n=2 (1.7%).

WHOQOL-BREF domain scores for gender dysphoric patients with and without non-genital surgery were: "Environmental" 58.81±14.89 (range 12.50-96.88), "Physical" 63.51±17.79 (range 14.29-100), "Psychological" 56.09+16.27 (range 16.67- 56.09), "Social" 60.35±21.88 (range 8.33-100), and "Global QOL and Health" 55.44+27.18 (range 0-100 with higher score representing better QOL). The mean APGAR family score was 7.23±2.86 (range 0-10 with a score of 7 or greater indicative of family functionality).

Regression analysis, which was used to assess the relative importance of various factors to WHOQOL-BREF domains and general questions, revealed that family support was an important element for all four domains and the general health and quality- of-life questions. Hormone therapy was an important element for the general questions and for all of the domains except "Environmental." Having undergone non-genital reassignment surgery, age, educational levels, and partnership status, did not impact domain and general question results related to quality of life.

Hepp U, Kraemer B, Schnyder U, Miller N, Delsignore A. Psychiatric comorbidity in gender identity disorder. J Psychosom Res. 2005 Mar;58(3):259-61.

Hepp et al. conducted a single-site (Zurich, Switzerland) prospective, non-blinded, observational study using a cross-sectional design. There was some acquisition of retrospective data. The investigators assessed current and lifetime psychiatry co-morbidity using structured interviews for diagnosis of Axis 1 disorders (clinical syndromes) and Axis 2 disorders (developmental or personality disorders) and HADS for dimensional evaluation of anxiety and depression. Statistical description of the cohort and intra-group comparisons was performed. Continuous variables were compared using t-tests and ANOVA.

A total of 31 patients with gender dysphoria participated in the study: 11 (35.5%) female-to-male; 20 (64.5%) male-to-female (ratio 1:1.8). The overall mean age was 32.2±10.3 years. Of the participants, seven had undergone reassignment surgery, 10 pre- surgical patients had been prescribed hormone therapy, and 14 pre-surgical patients had not been prescribed hormone therapy. Forty five and one half percent of female-to-male and 20% of male-to-female patients did not carry a lifetime diagnosis of an Axis 1 condition. Sixty three and six tenths percent of female-to-male and 60% of male-to-female patients did not carry a current diagnosis of an Axis 1 condition. Lifetime diagnosis of substance abuse and mood disorder were more common in male-to-female patients (50% and 55% respectively) than female-to-male patients (36.4% and 27.3% respectively). Current diagnosis of substance abuse and mood disorder were present in male-to-female patients (15% and 20% respectively) and absent in female-to-male patients. One or more personality disorders were identified 41.9%, but whether this was a current or lifetime condition was not specified. Of the patients, five (16.1%) had a Cluster A personality disorder (paranoid-schizoid), seven (22.6%) had a Cluster B personality disorder (borderline, anti-social, histrionic, narcissistic), six (19.4%) had a Cluster C personality disorder (avoidant, dependent, obsessive-compulsive), and two (6.5%) were not otherwise classified.

HADS scores were missing for at least one person. The HADS test revealed non-pathologic results for depression (female-to-male: 6.64±5.03; male-to-female: 6.58±4.21) and borderline results for anxiety (female-to-male: 7.09±5.11; male-to-female: 7.74±6.13, where a result of 7-10 = possible disorder). There were no differences by natal gender. The investigators reported a trend for less anxiety and depression as measured by HADS in the patients who had undergone surgery.

Johansson A, Sundbom E, Höjerback T, Bodlund O. A five-year follow-up study of Swedish adults with gender identity disorder. Arch Sex Behav. 2010 Dec;39(6):1429-37. Epub 2009 Oct 9.

Johansson et al. conducted a two center (Lund and Umeå, Sweden) non-blinded, observational study using a semi-cross-sectional design (albeit over an extended time interval) using a self-designed tool and Axis V assessment. The study was prospective except for the acquisition of baseline Axis V data. There were no formal controls in this mixed population with and without surgery.

The investigators assessed satisfaction with the reassignment process, employment, partnership, sexual function, mental health, and global satisfaction in gender-reassigned persons from two disparate geographic regions. Surgical candidates were required to have met National Board of Health and Welfare criteria including initial and periodic psychiatric assessment, ≥1 year of real-life experience in preferred gender, and ≥1 year of subsequent hormone treatment. In addition, participants were required to have been approved for reassignment five or more years prior and/or to have completed surgical reassignment (e.g., sterilization, genital surgery) two or more years prior. The investigators employed semi-structured interviews covering a self-designed list of 55 pre-formulated questions with a three or five point ordinal scale. Clinician assessment of Global Assessment of Functioning (GAF; Axis V) was also conducted and compared to initial finding during the study. Changes or differences considered to be biologically significant were not pre- specified except for GAF, which pre-specified a difference to mean change ≥5 points. Statistical corrections for multiple comparisons were not included. There was no stratification by treatment.

Of the pool of 60 eligible patients, 42 (70.0% of eligible) (17 [40.5 %] female-to-male; 25 [59.5%] male-to-female;

ratio 1:1.5) were available for follow-up. Of these, 32 (53.3% of eligible) (14 [43.8%] female-to-male; 18 [56.2%] male-to-female [ratio 1:1.3]) had completed genital gender reassignment surgery (not including one post mastectomy), five were still in the process of completing surgery, and five (one female-to-male; four male- to-female; ratio 1:4) had discontinued the surgical process prior to castration and genital surgery.

The age (ranges) of the patients at entry into the program, reassignment surgery, and follow-up were 27.8 (18-46), 31.4 (22- 49), and 38.9 (28-53) years in the female-to-male group respectively and 37.3 (21-60), 38.2 (22-57), and 46.0 (25.0-69.0) years in the male- to-female group respectively. The differences in age by cohort group were statistically significant. Of participants, 88.2% of all enrolled female-to-male versus 44.0% of all enrolled female-to-male patients had cross-gender identification in childhood (versus during or after puberty) ($p<0.01$).

Although 95.2% of all enrolled patients self-reported improvement in GAF, in contrast, clinicians determined GAF improved in 61.9% of patients. Clinicians observed improvement in 47% of female-to-male patients and 72% of male-to- female patients. A ≥5 point improvement in the GAF score was present in 18 (42.9%). Of note, three of the five patients who were in the process of reassignment and five of the five who had discontinued the process were rated by clinicians as having improved.

Of all enrolled 95.2% (with and without surgery) reported satisfaction with the reassignment process. Of these 42 patients, 33 (79%) identified themselves by their preferred gender and nine (21%) identified themselves as transgender. None of these nine (eight male-to-female) had completed reassignment surgery because of ambivalence secondary to lack of acceptance by others and dissatisfaction with their appearance. Of the patients who underwent genital surgery (n=32) and mastectomy only (n=one), 22 (66.7%) were satisfied while four (three female-to-male) were dissatisfied with the surgical treatment.

Regarding relationships after surgery, 16 (38.1%) (41.2% of female- to-male; 36.0% of male-to-female patients) were reported to have a partner. Yet more than that number commented on partner relationships: (a) 62.2 % of the 37 who answered (50.0% of female- to- male; 69.6% of male-to-female patients) reported improved partner relationships (five [11.9%] declined to answer.); (b) 70.0% of the 40 who answered (75.0% of female-to-male; 66.7% of male-to-female patients) reported an improved sex life. Investigators observed that reported post-operative satisfaction with sex life was statistically more likely in those with early rather than late cross-gender identification. In addition 55.4% self-reported improved general health; 16.1% reported impaired general health; 11.9% were currently being treated with anti-depressants or tranquilizers.

This study subsumes earlier work by Bodlund et al. (1994, 1996). The nationwide mortality studies by Dhejne et al. (2011) may include all or part of this patient population.

Leinung M, Urizar M, Patel N, Sood S. Endocrine treatment of transsexual persons: extensive personal experience. Endocr Pract. 2013 Jul-Aug;19(4):644-50. (United States study)

Leinung et al. conducted a single-center (Albany, New York) a partially prospective, non-blinded, observational study using a cross-sectional design and descriptive statistics. There were no formal controls. The investigators assessed employment, substance abuse, psychiatric disease, mood disorders, Human Immunodeficiency Virus (HIV) status in patients who had met WPATH guidelines for therapy, and who had initiated cross-sex hormone treatment.

A total of 242 patients treated for gender identity disorder in the clinic from 1992 through 2009 inclusive were identified. The number of those presenting for therapy almost tripled over time. Of these patients, 50 (20.7%) were female-to-male; 192 (79.3%) male-to-female (ratio 1:3.8).

The age of female-to-male and male-to-female patients with gender dysphoria at the time of clinic presentation was 29.0 and 38.0 years respectively.

The female-to-male and male-to-female patients with gender dysphoria at the time of hormone initiation were young: 27.5 and 35.5 years old respectively ($p<0.5$). Of the male-to-female cohort, 19 (7.8%) had received hormone therapy in the absence of physician supervision; Of the patient population, 91 (37.6%) had undergone gender-reassignment surgery (32 female-to-male [64.0% of all female-to- male; 35.2% of all surgical patients]; 59 male-to-female [30.7% of all male-to-female; 64.8% of all surgical patients]; ratio 1:1.8).

Psychiatric disease was more common in those who initiated hormone therapy at an older age (>32 years) 63.9% versus 48.9% at a younger age and by natal gender (48.0% of female-to-male; 58.3% male-to-female). Mood disorders were more common in those who initiated hormone therapy at an older age (>32 years) 52.1% versus 36.0% at a younger age and this finding did not differ by natal gender (40.0% of female-to-male; 44.8% male-to-female). The presence of mood disorders increased the time to reassignment surgery in male-to-female patients.

Motmans J , Meier P, Ponnet K, T'Sjoen G. Female and male transgender quality of life: socioeconomic and medical differences. J Sex Med. 2012 Mar;9(3):743-50. Epub 2011 Dec 21.

Motmans et al., conducted a prospective, non-blinded, observational study using a cross-sectional design and a non-specific quality of life tool. No concurrent controls were used in this study. Quality of life in this Dutch-speaking population was assessed using the Dutch version of a SF-36 (normative data was used). Participants included subjects who were living in accordance with the preferred gender and who were from a single Belgian university specialty clinic at Ghent. The Dutch version of the SF-36 questionnaire along with its normative data were used. Variables explored included employment, pension status, ability to work, being involved in a relationship. Also explored, was surgical reassignment surgery and the types of surgical interventions. Intragroup comparisons by transgender category were conducted, and the relationships between variables were assessed by analysis of variance (ANOVA) and correlations.

The age of the entire cohort (n=140) was 39.89±10.21 years (female-to-male: 37.03±8.51; male-to-female: 42.26±10.39). Results of the analysis revealed that not all female-to-male patients underwent surgical reassignment surgery and, of those who did, not all underwent complete surgical reassignment. The numbers of female-to-male surgical interventions were: mastectomy 55, hysterectomy 55, metaoidplasty eight (with five of these later having phalloplasty), phalloplasty 40, and implantation of a prosthetic erectile device 20. The frequencies of various male-to-female surgical interventions were: vaginoplasty 48, breast augmentation 39, thyroid cartilage reduction 17, facial feminization 14, and hair transplantation three.

The final number of subjects with SF-36 scores was 103 (49 [47.6%] female-to-male; 54 [52.4%] male-to-female; ratio 1:1.1). For this measure, the scores for the vitality and mental health domains for the final female-to-male cohort (n= 49 and not limited to those having undergone some element of reassignment surgery) were statistically lower: 60.61±18.16 versus 71.9±18.31 and 71.51±16.40 versus 79.3±16.4 respectively. Scores were not different from the normative data for Dutch women: vitality: 64.3±19.7 or mental health 73.7±18.2. None of the domains of the SF-36 for the final male-to-female cohort (n=54 and not limited to those having undergone some element of reassignment surgery) were statistically different from the normative data for Dutch women.

Analysis of variance indicated that quality of life as measured by the SF-36 did not differ by whether female-to-male patients had undergone genital surgery (metaoidoplasty or phalloplasty) or not. Also, ANOVA indicated that quality of life as measured by the SF-36 did not differ by whether male-to-female patients had undergone either breast augmentation or genital surgery (vaginoplasty) or not.

Whether there is overlap with the client populations studied by Heylens et al. or Wolers et al. is unknown.

Newfield E, Hart S, Dibble S, Kohler L. Female-to-male transgender quality of life. Qual Life Res. 2006 Nov;15(9):1447-57. Epub 2006 Jun 7. (United States study)

Newfield et al. conducted a prospective, observational internet self-report survey of unknown blinding status using a cross- sectional design and a non-specific quality of life tool in a mixed population with and without hormone therapy and/or reassignment surgery. There were no formal controls.

The investigators recruited natal female participants identifying as male using email, internet bulletin boards, and flyers/postcards distributed in the San Francisco Bay Area. Reduction of duplicate entries by the same participant was limited to the use of a unique user name and password.

The investigators employed the Short-Form 36 (SF-36) Version 2 using U.S. normative data. They reported using both male and female normative data for the comparator SF-36 cohort. Data for the eight domains were expressed as normative scoring. The Bonferroni correction was used to adjust for the risk of a Type 1 error with analyses using multiple comparisons.

A total of 379 U.S. respondents classified themselves as males-or-females to males with or without therapeutic intervention. The mean age of the respondents who classified themselves as male or female-to-male was 32.6±10.8 years. Of these 89% were Caucasian, 3.6% Latino, 1.8% African American, 1.8% Asian, and 3.8% other. Of these, 254 (67.0%) reported prior or current testosterone use while 242 (63.8%) reported current testosterone use. In addition, 136 (36.7%) reported having had "top" surgery and 11 (2.9%) reported having "bottom" surgery.

Complete SF-36 data were available for 376 U.S. respondents. For the complete, non-stratified U.S. cohort the Physical Summary Score (53.45±9.42) was statistically higher (better) than the natal gender unspecified SF-36 normative score (50±10) (p=<0.001), but was within one standard deviation of the normative mean. The Mental Summary Score (39.63±12.2) was statistically lower (worse) than the natal gender unspecified SF-36 normative score (50±10) (p<0.001), but was well within two standard deviations of the normative mean. Subcomponents of this score: Mental Health (42.12±10.2), Role Emotional (42.42±11.6), Social Functioning (43.14±10.9), and Vitality (46.22±9.9) were statistically lower (worse) than the SF-36 normative sub-scores, but well within one standard deviation of the normative sub- score means. Interpretive information for these small biologic differences in a proprietary assessment tool was not provided.

Additional intragroup analyses were conducted, although the data were not stratified by type of therapeutic intervention (hormonal, as well as, surgical). Outcomes of hormone therapy were considered separately and dichotomously from reassignment surgery. The Mental Summary Score was statistically higher (better) in those who had "Ever Received Testosterone" (41.22±11.9) than those with "No Testosterone Usage" (36.08±12.6) (p=0.001). The Mental Summary Scores showed a trend towards statistical difference between those who "Ever Received Top Surgery" (41.21±11.6) and those without "Top Surgery" (38.01±12.5) (p=0.067). These differences were well within one standard deviation of the normative mean. Interpretive information for these small biologic differences in a proprietary assessment tool was not provided.

b. Observational, surgical series, without concurrent controls

Blanchard R, Steiner BW, Clemmensen LH. Gender dysphoria, gender reorientation, and the clinical management of transsexualism. J Consult Clin Psychol. 1985 Jun; 53(3):295-304.

Blanchard et al. conducted a single center (Ontario, Canada), prospective, non-blinded, cross-sectional study using a self-designed questionnaire and a non- specific psychological symptom assessment with normative data. The investigators assessed social adjustment and psychopathology in patients with gender dysphoria and who were at least one year post gender reassignment surgery. Reassignment surgery was defined as either vaginoplasty or mastectomy/construction of male chest contour with or without nipple transplants, but did not preclude additional procedures. Partner preference was determined using Blanchard's Modified Androphilia-Gynephilia Index, and the nature and extent of any psychopathology was determined with the Symptom Check List 90-Revised (SCL-90R). Differences in test scores considered to be biologically significant were not pre-specified in the methods.

Of the 294 patients (111 natal females and 183 natal males, ratio: 1:1.65) initially evaluated, 263 were diagnosed with gender dysphoria. Of these 79 patients participated in the study (38 female-to-male; 32 male-to-female with male partner preference; 9 male-to-female with female partner preference). The respective mean ages for these 3 groups were 32.6, 33.2, and 47.7 years with the last group being older statistically (p=0.01).

Additional surgical procedures in female-to-male patients included: oophorectomy/hysterectomy (92.1%) and phalloplasty (7.9%). Additional surgical procedures in male-to-female patients with male partner preference included facial hair electrolysis 62.5% and breast implantation (53.1%). Additional procedures in male-to-female patients with female partner preference included facial hair electrolysis (100%) and breast implantation (33.3%). The time between reassignment surgery and questionnaire completion did not differ by group.

Psychopathology as measured by the Global Severity Index of the SCL-90R was absent in all three patient groups. Interpretation did not differ by the sex of the normative cohort.

Of participants, 63.2% of female-to-male patients cohabitated with partners of their natal gender; 46.9% of male-to-female patients with male partner preference cohabitated with partners of their natal gender; and no male-to-female patients with female partner preference cohabitated with partners of their natal gender.

Of participants, 93.7% reported that they would definitely undergo reassignment surgery again. The remaining 6.3% (one female-to-male; one male-to-female with male partner preference; three male-to-female with female partner preference) indicated that they probably would undertake the surgery again. Post hoc analysis suggested that the more ambivalent responders had more recently undergone surgery. Of responders, 98.7% indicated that they preferred life in the reassigned gender. The one ambivalent subject was a skilled and well compensated tradesperson who was unable to return to work in her male dominated occupation.

Eldh J, Berg A, Gustafsson M. Long-term follow up after sex reassignment surgery. Scand J Plast Reconstr Surg Hand Surg. 1997 Mar;31(1):39-45.

Eldh et al. conducted a non-blinded, observational study using a prospective cross-sectional design with an investigator designed questionnaire and retrospective acquisition of pre-operative data. The investigators assessed economic circumstances, family status, satisfaction with surgical results, and sexual function in patients who had undergone gender reassignment surgery.

Of the 175 patients who underwent reassignment surgery in Sweden, 90 responded. Of this number, 50 were female-to-male and 40 were male-to-female (ratio: 1:0.8). Patients reportedly were generally satisfied with the appearance of the reconstructed genitalia (no numbers provided). Of the patients who had undergone surgery prior to 1986, seven (14%) were dissatisfied with shape or size of the neo-phallus; eight (16%) declined comment. There were 14 (35%), with 12 having surgery prior to 1986 and two between 1986 and 1995 inclusive, were moderately satisfied because of insufficient vaginal volume; 8 (20%) declined comment. A neo-clitoris was not constructed until the later surgical cohort. Three of 33 reported no sensation or no sexual sensation. Eight had difficulties

comprehending the question and did not respond.

A total of nine (18%) patients had doubts about their sexual orientation; 13 (26%) declined to answer the question. The study found that two female-to- male patients and two male-to-female patients regretted their reassignment surgery and continued to live as the natal gender, and two patients attempted suicide.

Hess J, Rossi Neto R, Panic L, Rübben H, Senf W. Satisfaction with male-to-female gender reassignment surgery. Dtsch Arztebl Int. 2014 Nov 21;111(47):795-801.

Hess at al. conducted a prospective, blinded, observational study using a cross-sectional design and a self-designed anonymous questionnaire. The investigators assessed post-operative satisfaction in male-to-female patients with gender dysphoria who were followed in a urology specialty clinic (Essen, Germany). Patients had met the ICD-10 diagnostic criteria, undergone gender reassignment surgeries including penile inversion vaginoplasty, and a Likert-style questionnaire with 11 elements. Descriptive statistics were provided.

There were 254 consecutive eligible patients who had undergone surgery between 2004 and 2010 identified and sent surveys, of whom 119 (46.9%) responded anonymously. Of the participants, 13 (10.9%) reported dissatisfaction with outward appearance and 16 (13.4%) did not respond; three (2.5%) reported dissatisfaction with surgical aesthetics and 25 (21.0%) did not respond; eight (6.7%) reported dissatisfaction with functional outcomes of the surgery and 26 (21.8%) did not respond; 16 (13.4%) reported they could not achieve orgasm and 28 (23.5%) did not respond; four (3.4%) reported feeling completely male/more male than female and 28 (23.5%) did not respond; six (5.0%) reported not feeling accepted as a woman, two (1.7%) did not understand the question, and 17 (14.3%) did not respond; and 16 (13.4%) reported that life was harder and 24 (20.2%) did not respond.

Lawrence A. Patient-reported complications and functional outcomes of male-to-female sex reassignment surgery. Arch Sex Behav. 2006 Dec;35(6):717-27. Epub 2006 Nov 16. (United States study)

Lawrence conducted a prospective, blinded observational study using a cross-sectional design and a partially self-designed quality of life tool using yes/no questions or Likert scales. The investigator assessed sexual function, urinary function, and other pre/post-operative complications in patients who underwent male-to-female gender reassignment surgery. Questions addressed core reassignment surgery (neo-vagina and sensate neo-clitoris) and related reassignment surgery (labiaplasty, urethral meatus revision, vaginal deepening/widening, and other procedures), use of electrolysis, and use of hormones.

Questionnaires were designed to be completed anonymously and mailed to 727 eligible patients. Of those eligible, 232 (32%) returned valid questionnaires. The age at the time reassignment surgery was 44±9 (range 18-70) years and mean duration after surgery was 3±1 (range 1-7) years.

Happiness with sexual function and the reassignment surgery was reported to be lower when permanent vaginal stenosis, clitoral necrosis, pain in the vagina or genitals, or other complications such as infection, bleeding, poor healing, other tissue loss, other tissue necrosis, urinary incontinence, and genital numbness were present. Quality of life was impaired when pain in the vagina or genitals was present.

Satisfaction with sexual function, gender reassignment surgery, and overall QOL was lower when genital sensation was impaired and when vaginal architecture and lubrication were perceived to be unsatisfactory. Intermittent regret regarding reassignment surgery was associated with vaginal hair and clitoral pain. Vaginal stenosis was associated with surgeries performed in the more distant past; whereas, more satisfaction with vaginal depth and width was present in more recent surgical treatment.

Salvador J, Massuda R, Andreazza T, Korf WJ, Silveira LE, Kreische F, de Souza L, de Oliveira MH, Rosito T, Fernandes BS, Lobato MI. Minimum 2-year follow up of sex reassignment surgery in Brazilian male-to-female transsexuals. Psychiatry Clin Neurosci. 2012 Jun; 66(4):371-2. PMID: 22624747.

Salvador et al. conducted a single center (Port Alegre, Brazil) prospective, non-blinded, observational study using a cross-sectional design (albeit over an extended time interval) and a self-designed quality of life tool. The investigators assessed regret, sexual function, partnerships, and family relationships in patients who had undergone gender reassignment surgery at least 24 months prior.

Out of the 243 enrolled in the clinic over a 10 year interval, 82 underwent sex reassignment surgery. There were 69 participants with a minimum 2-year follow up, of whom 52 patients agreed to participate in the study. The age at follow-up was 36.3±8.9 (range 15-58) years with the time to follow-up being 3.8±1.7 (2-7) years. A total of 46 participants reported pleasurable neo-vaginal sex and post-surgical improvement in the quality of their sexual experience. The quality of sexual intercourse was rated as satisfactory to excellent, average, unsatisfactory, or not applicable in the absence of sexual contact by 84.6%, 9.6%, 1.9%, and 3.8% respectively. Of the participants, 78.8% reported greater ease in initiating and maintaining relationships; 65.4% reported having a partner; 67.3% reported increased frequency of intercourse; 36.8% reported improved familial relationships. No patient reported regret over reassignment surgery. The authors did not provide information about incomplete questionnaires.

Tsoi WF. Follow-up study of transsexuals after sex-reassignment surgery. Singapore Med J. 1993 Dec; 34(6):515-7.

Tsoi conducted a single-center (Singapore) prospective, non-blinded, observational study using a cross-sectional design and a self-designed quality of life tool. The investigator assessed overall life satisfaction, employment, partner status, and sexual function in gender-reassigned persons who had undergone gender reassignment surgery between 1972 and 1988 inclusive and who were approximately 2 to 5 years post-surgery. Acceptance criteria for surgery included good physical health, good mental health, absence of heterosexual tendencies, willingness to undergo hormonal therapy for ≥6 months, and willingness to function in the life of the desired gender for ≥6 months. Tsoi also undertook retrospective identification of variables that could predict outcomes.

The size of the pool of available patients was not identified. Of the 81 participants, 36 (44.4%) were female-to-male and 45 (55.6%) were male-to-female (ratio 1:1.25).

The mean ages at the time of the initial visit and operation were: female-to-male 25.4±4.4 (range 14-36) and 27.4 ±4.0; (range 14-36); male-to-female 22.9±4.6 (range 14-36) and 24.7±4.3 (14-36) years respectively. Of all participants, 14.8% were under age 20 at the time of the initial visit. All were at least 20 at the time of gender reassignment surgery. The reported age of onset was 8.6 years for female-to-male patients and 8.7 years for male-to-female patients.

All participants reported dressing without difficulty in the reassigned gender; 95% of patients reported good or satisfactory adjustment in employment and income status; 72% reported good or satisfactory adjustment in relationships with partners. Although the quality of life tool was self-designed, 81% reported good or satisfactory adjustment to their new gender, and 63% reported good or acceptable satisfaction with sexual activity. Of the female-to-male patients, 39% reported good or acceptable satisfaction with sex organ function in comparison to 91% of male-to-female patients ($p<0.001$). (The author reported that a fully functioning neo-phallus could not be constructed at the time.) The age of non-intercourse sexual activity was the only predictor of an improved outcome.

Weyers S, Elaut E, De Sutter P, Gerris J, T'Sjoen G, Heylens G, De Cuypere G, Verstraelen H. Long-term assessment of the physical, mental, and sexual health among transsexual women. J Sex Med. 2009 Mar;6(3):752-60. Epub 2008 Nov 17.

Weyers at al. (2009) conducted a prospective, non-blinded, observational study using a cross-sectional design and several measurement instruments including a non-specific quality of life tool and a semi-specific quality of life tool (using normative data) along with two self-designed tools.

The investigators assessed general quality of life, sexual function, and body image from the prior four weeks in Dutch-speaking male-to-female patients with gender dysphoria who attended a single-center (Ghent, Belgium), specialized, comprehensive care university clinic. Investigators used the Dutch version of the SF-36 and results were compared to normative data from Dutch women and U.S. women. The 19 items of the Dutch version of the Female Sexual Function Index (FSFI) were used to measure sexual desire, function, and satisfaction. A self-designed seven question visual analog scale (VAS) was used to measure satisfaction with gender related body traits and appearance perception by self and others. A self-designed survey measured a broad variety of questions regarding personal medical history, familial medical history, relationships, importance of sex, sexual orientation, gynecologic care, level of regret, and other health concerns. For this study, hormone levels were also obtained.

The study consisted of 50 (71.5% of the eligible recruits) participants. Analysis of the data revealed that the patient's average age was 43.1 ±10.4 years, and all of the patients had vaginoplasty. This same population also had undergone additional feminization surgical procedures (breast augmentation 96.0%, facial feminization 36.0%, vocal cord surgery 40.0%, and cricoid cartilage reduction 30.0%). A total of two (4.0%) participants reported "sometimes" regretting reassignment surgery and 23 (46.0%) were not in a relationship. For the cohort, estradiol, testosterone, and sex hormone binding globulin levels were in the expected range for the reassigned gender. The SF-36 survey revealed that the subscale scores of the participants did not differ substantively from those of Dutch and U.S. women. VAS scores of body image were highest for self-image, appearance to others, breasts, and vulva/vagina (approximately 7 to 8 of 10). Scores were lowest for body hair, facial hair, and voice characteristics (approximately 6 to 7 of 10).

The total FSFI score was 16.95±10.04 out of a maximal 36. The FSFI scores averaged 2.8 (6 point maximum): satisfaction 3.46±1.57, desire 3.12+1.47, arousal 2.95±2.17, lubrication 2.39±2.29, orgasm 2.82±2.29, and pain 2.21±2.46. Though these numbers were reported in the study, data on test population controls were not provided.

A post hoc exploration of the data suggested the following: perceived improvement in general health status was greater in the subset that had undergone reassignment surgery within the last year; sexual orientation impacted the likelihood of being in a relationship; SF-36 scores for vitality, social functioning, and mental health were nominally better for those in relationships, but that overall SF-36 scores did not differ by relationship status; sexual orientation and being in a relationship impacted FSFI scores; and reported sexual function was higher in those with higher satisfaction with regards to their appearance.

Wierckx K, Van Caenegem E, Elaut E, Dedecker D, Van de Peer F, Toye K, Weyers S, Hoebeke P, Monstrey S, De Cuypere G, T'Sjoen G. Quality of life and sexual health after sex reassignment surgery in transsexual men. J Sex Med. 2011 Dec;8 (12):3379-88. Epub 2011 Jun 23.

Wierckx at al. conducted a prospective, non-blinded, observational study using a cross-sectional design and several measurement instruments (a non-specific quality of life tool with reported normative data along with three self-designed tools). The investigators assessed general quality of life, sexual relationships, and surgical complications in Dutch-speaking female-to-male patients with gender dysphoria who attended a single-center, specialized, comprehensive care, university clinic (Ghent, Belgium). Investigators used the Dutch version of the SF-36 with 36 questions, eight subscales, and two domains evaluating physical and mental health. Results were compared to normative data from Dutch women and Dutch men. Self -designed questionnaires to evaluate aspects of medical history, sexual functioning (there were separate versions for those with and without partners), and surgical results were also used. The Likert-style format was used for many of the questions.

A total of 79 female-to-male patients with gender dysphoria had undergone reassignment surgery were recruited; ultimately, 47 (59.5%) chose to participate. Three additional patients were recruited by other patients. One of the 50 participants was later excluded for undergoing reassignment surgery within the one year window. The age of patients was: 30±8.2 years (range 16 to 49) at the time of reassignment surgery and 37.1 ±8.2 years (range 22 to 54) at the time of follow-up. The time since hysterectomy, oopherectomy, and mastectomy was 8 years (range 2 to 22). The patient population had undergone additional surgical procedures: metaidoiplasty (n=9; 18.4%), phalloplasty (n=8 after metaidoiplasty, 38 directly; 93.9% total), and implantation of erectile prosthetic device (n=32; 65.3%). All had started hormonal therapy at least two years prior to surgery and continued to use androgens.

The SF-36 survey was completed by 47 (95.9%) participants. The "Vitality" and the "Mental Health" scales were lower than the Dutch male population: 62.1±20.7 versus 71.9±18.3 and 72.6±19.2 versus 79.3±16.4 respectively. These subscale scores were equivalent to the mean scores of the Dutch women.

None of the participants were dissatisfied with their hysterectomy-oopherectomy procedures; 4.1% were dissatisfied with their mastectomies because of extensive scarring; and 2.2% were dissatisfied with their phalloplasties. Of the participants, 17.9% were dissatisfied with the implantation of an erectile prosthetic device; 25 (51.0%) reported at least one post-operative complication associated with phalloplasty (e.g., infection, urethrostenosis, or fistula formation); 16 (50.0% of the 32 with an erectile prosthetic device) reported at least one post-operative complication associated with implantation of an erectile prosthetic (e.g., infection, leakage, incorrect positioning, or lack of function).

A total of 18 (36.7%) participants were not in a relationship; 12.2% reported the inability to achieve orgasm with self-stimulation less than half the time; 12.2% did not respond to the question. Of those participants with partners, 28.5% reported the inability to achieve orgasm with intercourse less than half the time and 9.7% did not respond to this question. Also, 61.3% of those with partners reported (a) no sexual activities (19.4%) or (b) activities once or twice monthly (41.9%), and there were 12.9% who declined to answer.

c. Observational, surgical patients, cross-sectional, with controls

Ainsworth TA, Spiegel JH. Quality of life of individuals with and without facial feminization surgery or gender reassignment surgery. Qual Life Res. 2010 Sep;19(7):1019-24.

Ainsworth and Spiegel conducted a prospective, observational study using a cross-sectional design and a partially self-designed survey tool. The blind status is unknown. Treatment types served as the basis for controls.

The investigators, head and neck surgeons who provided facial feminization services, assessed perception of appearance and quality of life in male-to-female subjects with self-reported gender dysphoria. Patients could have received no therapeutic intervention, hormone therapy, reassignment surgery, and/or facial feminization surgery and an unrestricted length of transition. (Transition refers to the time when a transgender person begins to live as the gender with which they identify rather than the gender assigned at birth.) Criteria for the various types of interventions were not available because of the survey design of the study. Patients were recruited via website or at a 2007 health conference. Pre-specified controls to eliminate duplicate responders were not provided. The investigators employed a self-designed Likert-style facial feminization outcomes evaluation questionnaire and a "San Francisco 36" health questionnaire. No citations were provided for the latter. It appears to be the Short-form (SF) 36-version 2. Changes or differences considered to be biologically significant were not pre-specified. Power corrections for multiple comparisons were not provided.

The investigators reported that there were 247 participants. (The numbers of incomplete questionnaires was not reported.) Of the 247 participants, 25 (10.1%) received only primary sex trait reassignment surgery, 28 (11.3%)

received facial surgery without primary sex trait reassignment surgery, 47 (19.0%) received both facial and primary sex trait reassignment surgery, and 147 (59.5%) received neither facial nor reassignment surgery.

The mean age for each of these cohorts was: 50 years (no standard deviation [S.D.]) only reassignment surgery, 51 years (no S.D.) only facial surgery, 49 years (no S.D.) both types of surgery, and 46 years (no S.D.) (neither surgery). Of the surgical cohorts: 100% of those who had undergone primary sex trait reassignment surgery alone used hormone therapy, 86% of those who had undergone facial feminization used hormone therapy, and 98% of those who had undergone both primary sex trait reassignment surgery and facial feminization used hormone therapy. In contrast to the surgical cohorts, 66% of the "no surgery" cohort used hormonal therapy, and a large proportion (27%) had been in transition for less than one year.

The investigators reported higher scores on the facial outcomes evaluation in those who had undergone facial feminization. Scores of the surgical cohorts for the presumptive SF-36 comprehensive mental health domain did not differ from the general U.S. female population. Scores of the "no surgery" cohort for the comprehensive mental health domain were statistically lower than those of the general U.S. female population, but within one standard deviation of the normative mean. Mean scores of all the gender dysphoric cohorts for the comprehensive physical domain were statistically higher than those of the general female U.S. population, but were well within one standard deviation of the normative mean. Analyses of inter-cohort differences for the SF-36 results were not conducted. Although the investigators commented on the potential disproportionate impact of hormone therapy on outcomes and differences in the time in "transition", they did not conduct any statistical analyses to correct for putative confounding variables.

Kraemer B, Delsignore A, Schnyder U, Hepp U. Body image and transsexualism. Psychopathology. 2008;41(2):96-100. Epub 2007 Nov 23.

Kraemer et al. conducted a single center (Zurich, Switzerland) prospective, non-blinded, observational study using a cross-sectional design comparing pre-and post- surgical cohorts. Patients were required to meet DSM III or DSM IV criteria as applicable to the time of entry into the clinic. Post-surgical patients were from a long-term study group (Hepp et al., 2002). Pre-surgical patients were recent consecutive referrals. The assessment tool was the Fragebogen zur Beurteilung des eigenen Korpers (FBeK) which contained three domains.

There were 23 pre-operative patients: 7 (30.4%) female-to-male and 16 (69.6%) male-to-female (ratio 1:2.3). There were 22 post-operative patients: 8 (36.4 %) female-to-male and 14 (63.6%) male-to-female (ratio 1:1.8). The mean ages of the cohorts were as follows: pre-operative 33.0±11.3 years; post-operative 38.2±9.0 years. The mean duration after reassignment surgery was 51±25 months (range 5-96).

The pre-operative groups had statistically higher insecurity scores compared to normative data for the natal sex: female-to-male 9.0±3.8 versus 5.1±3.7; male-to-female 8.1±4.5 versus 4.7±3.1 as well as statistically lower self-confidence in one's attractiveness: female-to-male 3.1±2.9 versus 8.9±3.1; male-to-female 7.0±2.9 vs 9.5±2.6.

Mate-Kole C, Freschi M, Robin A. Aspects of psychiatric symptoms at different stages in the treatment of transsexualism. Br J Psychiatry. 1988 Apr;152: 550-3.

Mate-Kole at al. conducted a single site (London, United Kingdom) prospective non-blinded, observational study using a cross-sectional design and two psychological tests (one with some normative data). Concurrent controls were used in this study design. The investigators assessed neuroticism and sex role in natal males with gender dysphoria. Patients at various stages of management, (i.e., under evaluation, using cross-sex hormones, or post reassignment surgery [6 months to 2 years]) were matched by age of cross-dressing onset, childhood neuroticism, personal psychiatric history, and family psychiatric history. Both a psychologist and psychiatrist conducted assessments. The

instruments used were the Crown Crisp Experiential Index (CCEI) for psychoneurotic symptoms and the Bem Sex Role Inventory. ANOVA was used to identify differences between the three treatment cohorts.

For each cohort, investigators recruited 50 male-to-female patients from Charing Cross Hospital. The mean ages of the three cohorts were as follows: 34 years for patients undergoing evaluation; 35 years for wait-listed patients; and 37 years for post-operative patients. For the cohorts, 22% of those under evaluation, 24% of those on hormone treatment only, and 30% of those post-surgery had prior psychiatric histories, and 24%, 24%, while 14% in each cohort, respectively, had a history of attempted suicide. More than 30% of patients in each cohort had a first degree relative with a history of psychiatric disease.

The scores for the individual CCEI domains for depression and somatic anxiety were statistically higher (worse) for patients under evaluation than those on hormone treatment alone. The scores for all of the individual CCEI domains (free floating anxiety, phobic anxiety, somatic anxiety, depression, hysteria, and obsessionality) were statistically lower in the post-operative cohort than in the other two cohorts.

The Bem Sex Role Inventory masculinity score for the combined cohorts was lower than for North American norms for either men or women. The Bem Sex Role Inventory femininity score for the combined cohorts was higher than for North American norms for either men or women. Those who were undergoing evaluation had the most divergent scores from North American norms and from the other treatment cohorts. Absolute differences were small. All scores of gender dysphoric patients averaged between 3.95 and 5.33 on a 7 point scale while the normative scores averaged between 4.59 and 5.12.

Wolfradt U, Neumann K. Depersonalization, self-esteem and body image in male-to-female transsexuals compared to male and female controls. Arch Sex Behav. 2001 Jun;30(3):301-10.

Wolfradt and Neumann conducted a controlled, prospective, non-blinded, observational study using a cross-sectional design. The investigators assessed aspects of personality in male-to-female patients who had undergone vocal cord surgery for voice feminization and in healthy non-transgender volunteers from the region. The patients had undergone gender reassignment surgery 1 to 5 years prior to voice surgery. The volunteers were matched by age and occupation.

The primary hypothesis was that depersonalization, with the sense of being detached from one’s body or mental processes, would be more common in male-to- female patients with gender dysphoria. German versions of the Scale for Depersonalization Experiences (SDPE), the Body Image Questionnaire (BIQ), a Gender Identity Trait Scale (GIS), and the Self-Esteem Scale (SES) were used in addition to a question regarding global satisfaction. Three of the assessments used a 5 point scale (BIQ, GIS, and SDPE) for questions. One used a 4 point scale (SES). Another used a 7 point scale (global satisfaction). The study consisted of 30 male-to-female patients, 30 healthy female volunteers, and 30 healthy male volunteers. The mean age of study participants was 43 years (range 29- 67).

Results of the study revealed that there were no differences between the three groups for the mean scores of measures assessing depersonalization, global satisfaction, the integration of masculine traits, and body-image-rejected (subset). Also, the sense of femininity was equivalent for male-to-female patients and female controls and higher than that in male controls. The levels of self-esteem and body image-dynamic (subset) were equivalent for male-to-female patients and male controls and higher than that in female controls, and none of the numeric differences between means exceeded 0.61 units.

Kuhn A, Bodmer C, Stadlmayr W, Kuhn P, Mueller M, Birkhäuser M. Quality of life 15 years after sex reassignment surgery for transsexualism. Fertil Steril. 2009 Nov;92(5):1685-1689.e3. Epub 2008 Nov 6.

Kuhn et al. conducted a prospective, non-blinded, observational study using a cross-sectional design and semi-matched control cohort. The investigators assessed global satisfaction in patients who were from gynecology and endocrinology clinic (Bern, Switzerland), and who had undergone some aspect of gender reassignment surgery in the distant past, but were still receiving cross-sex hormones from the clinic. The quality of life assessment tools included a VAS and the King's Health Questionnaire (KHQ), which consists of eight domains with scores between zero and five or one and five, with lower scores indicating higher preference. The KHQ and the numerical change/difference required for clinical significance (≥5 points in a given domain, with higher scores being more pathologic) were included in the publication. Twenty healthy female controls from the medical staff who had previously undergone an abdominal or pelvic surgery were partially matched by age and body mass index (BMI), but not sex. No corroborative gynecologic or urologic evaluations were undertaken.

Of the 55 participants, three (5.4%) were female-to-male and 52 (94.5%) were male-to-female (ratio 1:17.3). Reassignment surgery had been conducted 8 to 23 years earlier (median 15 years). The median age of the patients at the time of this study was 51 years (range 39-62 years). The patients had undergone a median of nine surgical procedures in comparison to the two undergone by controls. Reassignment patients were less likely to be married (23.6% versus 65%; p=0.002); partnership status was unknown in five patients. The scores of VAS global satisfaction (maximal score eight) were lower for surgically reassigned patients (4.49±0.1 SEM) than controls (7.35±0.26 SEM) (p<0.0001).

The abstract stated that quality of life was lower in reassignment patients 15 years after surgery relative to controls. One table in the study, Table 2, delineated statistically and biologically significant differences for four of the eight KHQ domains between the patients and controls: physical limitation: 37.6±2.3 versus 20.9±1.9 (p<0.0001), personal limitation: 20.9±1.9 versus 11.6±0.4 (p<0.001), role limitation: 27.8+2.4 versus 34.6+1.7 (p=0.046), and general health: 31.7±2.2 versus 41.0±2.3 (p<0.02). There is a related paper by Kuhn et al. 2006.

Haraldsen IR, Dahl AA. Symptom profiles of gender dysphoric patients of transsexual type compared to patients with personality disorders and healthy adults. Acta Psychiatr Scand. 2000 Oct;102(4):276-81.

Haraldsen and Dahl conducted a single-center (Oslo, Norway) partially prospective, non-blinded, observational study using a cross-sectional design and a non-specific psychometric test. There was a control group, but it was not concurrent.

In the germane sub-study, the investigator assessed psychopathology in patients with gender dysphoria. Patients, who were independently evaluated by two senior psychiatrists, were required to meet DSM III-R or DSM IV diagnostic criteria and the Swedish criteria for reassignment surgery. The Norwegian version of the SCL-90 was used. The testing was conducted from 1987 to 1989 for those who had undergone reassignment surgery between 1963 and 1987 and from 1996 to 1998 for pre- surgical patients who had applied for reassignment surgery between 1996 and 1998. In addition, Axis I, Axis II, and Axis V (Global Functioning) was assessed.

Of 65 post–surgical and 34 pre-surgical patients, 59 post-surgical and 27 pre-surgical patients ultimately entered the study. The combined cohorts consisted of 35 (40.7%) female-to-male patients and 51 (59.3%) male-to-female patients (ratio 1:1.5). The ages were female-to-male 34±9.5 years and female-to-male 33.3±10.0 years. The other control group consisted of patients with personality disorder. Of these, 101 (27 men (33.9±7.3 years) and 74 women (31.6±8.2) were tested during a treatment program. One year later, 98% were evaluated. A total of 28 (32.5%) of the pre- and post- reassignment surgery patients had an Axis I diagnosis compared to 100 (99.0%) of those with personality disorders. Depression and anxiety were the most common diagnoses in both groups, but were approximately three to four times more common in the personality disorder cohort. Seventeen (19.8%) of the pre- and post-reassignment surgery patients had an Axis II diagnosis whereas the mean number of personality disorders in the personality disorder cohort was 1.7±1. The Global Assessment of Function was higher (better) in the gender

dysphoric groups (78.0±8.9) than in the personality disorder cohort (53.0±9.0).

Global Severity Indices (GSI) were highest for those with personality disorder regardless of gender and exceeded the cut-point score of 1.0. The GSI scores for females-to-males and males-to-females were 0.67±57 and 0.56±0.45. Although they were nominally higher than the healthy normative controls (males: 0.32±0.36 and females 0.41±0.43), they were well within the non- pathologic range. The same was true for the subscales.

SCL-90 GSI scores did not differ substantively between pre- and post-surgical patients, nor did the SCI subscale scores differ substantively between pre- and post-surgical patients. Any small non-significant differences tracked with the age and sex differences.

Beatrice J. A psychological comparison of heterosexuals, transvestites, preoperative transsexuals, and postoperative transsexuals. J Nerv Ment Dis. 1985 Jun;173(6):358-65. (United States study)

Beatrice conducted a prospective, non-blinded, observational study using a cross-sectional design and control cohorts in the U.S. The investigator assessed psychological adjustment and functioning (self-acceptance) in male-to-female patients with gender dysphoria (with and without GRS), transvestites from two university specialty clinics, and self-identified heterosexual males recruited from the same two universities. The criteria to qualify for the study included being known to the clinic for at least one year, cross-dressing for at least one year without arrest, attendance at 10 or more therapy sessions, emotionally self-supporting, and financially capable of payment for reassignment surgery, and all of these criteria were met by the pre-operative cohort as well as the post-operative cohort. The cohorts were matched to the post-operative cohort (age, educational level, income, ethnicity, and prior heterosexual object choice). The post-operative cohort was selected not on the basis of population representation, but on the basis of demographic feasibility for a small study. The instruments used were the Minnesota Multiphasic Personality Inventory (MMPI) and the Tennessee Self-Concept Scale (TSCS). Changes or differences considered to be biologically significant were not pre-specified.

Of the initial 54 recruits, ten subjects were left in each of the cohorts because of exclusions identified due to demographic factors. The mean age of each cohort were as follows: pre-operative gender dysphoric patients 32.5 (range 27-42) years, postoperative patients 35.1 (30-43) years old, transvestite 32.5 (29-37) years old, and heterosexual male 32.9 (28-38) years old. All were Caucasian. The mean age for cross-dressing in pre-operative patients (6.4 years) and post-operative patients (5.8 years) was significantly lower than for transvestites (11.8 years).

The scores for self-acceptance did not differ by diagnostic category or surgical status as measured by the TSCS instrument. As measured by the T-scored MMPI instrument (50±10), levels of paranoia and schizophrenia were higher for post-operative (GRS) patients (63.0 and 68.8) than transvestites (55.6 and 59.6) and heterosexual males (56.2 and 51.6). Levels of schizophrenia were higher for pre-operative patients (65.1) than heterosexual males (51.6). There were no differences between patients with gender dysphoria. Scores for the Masculine-Feminine domain were equivalent in those with transvestitism and gender dysphoria with or without surgery, but higher than in heterosexual males. The analysis revealed that despite the high level of socio-economic functioning in these highly selected subjects, the MMPI profiles based on the categories with the highest scores were notable for antisocial personality, emotionally unstable personality, and possible manic psychosis in the pre-operative GRS patients and for paranoid personality, paranoid schizophrenia, and schizoid personality in the post-operative GRS patients. By contrast, the same MMPI profiling in heterosexual males and transvestites was notable for the absence of psychological dysfunction.

d. Observational, surgical patients, longitudinal, with controls

Dhejne C, Lichtenstein P, Boman M, Johansson A, Langstrom N, Landen M. Long-term follow-up of transsexual persons undergoing sex reassignment surgery: cohort study in Sweden. PLoS One. 2011;6(2):e16885. Epub 2011 Feb 22.

Dhejne et al. conducted a retrospective, non-blinded, observational study of nation-wide mortality using a longitudinal and a population-based matched cohort. The investigators assessed conditions such as, but not limited to, mortality, suicide attempts, psychiatric hospitalization, and substance abuse in gender-reassigned persons and randomly selected unexposed controls matched by birth year and natal sex (1:10) as well as by birth year and the reassigned gender (1:10). Data were extracted from national databases including the Total Population Register (Statistics Sweden), the Medical Birth Register, the Cause of Death Register (Statistics Sweden), the Hospital Discharge Register (National Board of Health and Welfare), the Crime Register (National Council of Crime), and those from the Register of Education for highest educational level. The criteria required to obtain the initial certificate for reassignment surgery and change in legal status from the National Board of Health and Welfare were the 2002 WPATH criteria and included evaluation and treatment by one of six specialized teams, name change, a new national identity number indicative of gender, continued use of hormones, and sterilization/castration. Descriptive statistics with hazard ratios were provided.

Investigators identified 804 patients with gender identity disorder (or some other disorder) in Sweden during the period from 1973 to 2003 inclusive. Of these patients, 324 (40.3%) underwent gender-reassignment surgery (133 female-to-male [41.0%]; 191 male-to-female [59.0%]; ratio 1:1.4). The average follow-up time for all-cause mortality was 11.4 years (median 9.1). The average follow-up time for psychiatric hospitalization was 10.4 years (median 8.1).

The mean ages in female-to-male and male-to-female reassigned patients were: 33.3±8.7 (range 20–62) and 36.3± 10.1 (range 21–69) years, respectively. Immigrant status was two times higher in reassigned patients (n=70, 21.6%) than in either type of control (birth [natal] sex matched n=294 [9.1%] or reassigned gender matched n=264 [8.1%]). Educational attainment (10 or more years) was somewhat lower for reassigned patients (n=151 [57.8%]) than in either type of control (birth sex matched n=1,725 [61.5%] or reassigned gender matched n=1804 [64.3%]) (cohort data were incomplete). The biggest discordance in educational attainment was for female-to-male reassigned patients regardless of the control used. Prior psychiatric morbidity (which did not include hospitalization for gender dysphoria) was more than four times higher in reassigned patients (n=58, 17.9%) than in either type of control (birth sex matched n=123 [3.8%] or reassigned gender matched n=114 [3.5%]).

All-cause mortality was higher for patients who underwent gender reassignment surgery (n=27 [8.3%]) than in controls (hazard ratio 2.8 [CI 1.8-4.3]) even after adjustment for covariants (prior psychiatric morbidity and immigration status). Divergence in the survival curves began at 10 years. Survival rates at 20 year follow-up (as derived from figure 1) were: female control 97%, male controls 94%, female-to-male patients 88%, and male-to-female patients 82%. The major contributor to this mortality difference was completed suicide (n=10 [3.1%]; adjusted hazard ratio 19.1 [CI 5.8-62.9]). Mortality due to cardiovascular disease was modestly higher for reassigned patients (n=9 [2.8%]) than in controls (hazard ratio 2.5 [CI 1.2-5.3]).

Suicide attempts were more common in patients who underwent gender reassignment surgery (n= 29 [9.0%] than in controls (adjusted hazard ratio 4.9 [CI 2.9–8.5]). Male-to-female patients were at higher adjusted risk for attempted suicide than either control whereas female-to-male patients were at higher adjusted risk compared to only male controls and maintained the female pattern of higher attempted suicide risk. Hospitalizations for psychiatric conditions (not related to gender dysphoria) were more common in reassigned persons n= 64 [20.0%] than in controls (hazard ratio 2.8 [CI 2.0–3.9]) even after adjusting for prior psychiatric morbidity. Hospitalization for substance abuse was not greater than either type of control.

The nationwide mortality studies by Dhejne et al. (2011) includes much, if not all, of the Landén (1998) patient population and much of the Dhejne et al. (2014) population.

Dhejne C, Öberg K, Arver S, Landén M. An analysis of all applications for sex reassignment surgery in Sweden, 1960-2010: prevalence, incidence, and regrets. Arch Sex Behav. 2014 Nov;43(8):1535-45. Epub 2014 May 29 and Landén M, Wålinder J, Hambert G, Lundström B. Factors predictive of regret in sex reassignment. Acta Psychiatr Scand. 1998 Apr;97(4):284 (Dhejne et al., 2014; Landén et al., 1998) Sweden-All

Dhejne et al. conducted a non-blinded, observational study that was longitudinal for the capture of patients with "regret" in a national database. This same group (Landén et al., 1998) conducted a similar study along with retrospective acquisition of clinical data to explore the differences between the cohorts with and without regret. There were no external controls; only intra- group comparisons for this surgical series.

The investigators assessed the frequency of regret for gender reassignment surgery. Data were extracted from registries at the National Board of Health and Welfare to which patients seeking reassignment surgery or reversal of reassignment surgery make a formal application and which has maintained such records since a 1972 law regulating surgical and legal sex reassignment. The investigators reviewed application files from 1960 through 2010. The specific criteria to qualify for gender surgery were not delineated. Patients typically underwent diagnostic evaluation for at least one year. Diagnostic evaluation was typically followed by the initiation of gender confirmation treatment including hormonal therapy and real-life experience. After two years of evaluation and treatment, patients could make applications to the national board. Until recently sterilization or castration were the required minimal surgical procedures (Dhejne et al., 2011). Secular changes in this program included consolidation of care to limited sites, changes in accepted diagnostic criteria, and provision of non-genital surgery, e.g., mastectomy during the real- life experience phase, and family support.

There were 767 applicants for legal and surgical reassignment (289 [37.7%] female-to-male and 478 [62.3%] male-to-female; ratio 1:1.6). The number of applicants doubled each ten year interval starting in 1981.

Of the applicants, 88.8% or 681 (252 [37.0%] female-to-male and 429 [63.0%] male-to-female; ratio 1:1.7] had undergone surgery and changed legal status by June 30, 2011. This number included eight (four [50.0%] female-to-male and four [50.0%] male to female; ratio 1:1) people who underwent surgery prior to the 1972 law. This number appears to include 41 (two [4.9%] female-to-male and 39 [95.1%] male-to-female; ratio 1:19.5) people who underwent surgery abroad at their own expense (usually in Thailand or the U.S.). This cohort (6% of 681) includes one person who was denied reassignment surgery by Sweden.

Twenty-five (3.3%) of the applications were denied with the two most common reasons being an incomplete application or not meeting the diagnostic criteria. An additional 61(8.0%) withdrew their application, were wait-listed for surgery, postponed surgery (perhaps in hopes of the later revocation of the sterilization requirement), or were granted partial treatment.

The formal application for reversal of the legal gender status, the "regret rate", was 2.2%. No one who underwent sex- reassignment surgery outside of Sweden (36 of these 41 had surgery after 1991) has requested reversal. The authors noted, however, that this preliminary number may be low because the median time interval to reversal request was eight years-only three of which had elapsed by publication submission- and because it was the largest serial cohort. This number did not include other possible expressions of regret including suicide (Dhejne et al., 2011).

Dhejne et al. in 2014 reported that the female-to-male (n=5): male-to-female (n=10) ratio among those who made formal applications for reversal was 1:2. The investigators also reported that the female-to-male applicants for reversal were younger at the time of initial surgical application (median age 22 years) than the complete female-to-

male cohort at the time of surgical application (median age 27 years). By contrast the male-to-female applicants for reversal were older at the time of initial surgical application (median age 35 years) than the complete male-to-female cohort at the time of initial surgical application (median age 32 years). Other clinical data to explore the differences between the cohorts with and without regret were not presented in this update publication.

In their earlier publication, in addition to determining a regret rate (3.8%), Landén et al. extracted data from medical records and government verdicts. Pearson Chi-square testing with Yates' correction for small sample sizes was used to identify candidate variables predictive of regret. They observed that: (a) 25.0% of the cohort with regrets and 11.4% of the cohort without regrets were unemployed, (b) 16.7% of the cohort with regrets and 15.4% of the cohort without regrets were on "sick benefit", (c) 15.4% of the cohort with regrets and 13.9% of the cohort without regrets had problems with substance abuse, (d) 69.2% of the cohort with regrets and 34.6% of the cohort without regrets had undergone psychiatric treatment, (e) 15.4% of the cohort with regrets and 8.8% of the cohort without regrets had a mood disorder, and (f) 15.4% of the cohort with regrets and 1.5% of the cohort without regrets had a psychotic disorder.

The putative prognostic factors that were statistically different between the cohorts with and without regret included prior psychiatric treatment, a history of psychotic disorder, atypical features of gender identity, and poor family support. Factors that trended towards statistical difference included having an unstable personality, sexual orientation and transvestitism. Univariate regression analyses further clarified the most important variables. These variables were tested with logistic regression. Initial modeling included the variable "history of psychotic disorder". Although this variable was predictive, it was excluded from future analyses because it was already a contraindication to reassignment surgery. Additional multivariate regression analyses identified poor family support as the most predictive variable and atypical features of gender identity as the second most important variable. Presence of both variables had a more than additive effect.

The nationwide mortality studies by Dhejne et al. (2011) includes much, if not all, of the Landén (1998) patient population and most of the Dhejne (2014) population. There is a related paper by Landén et al. 1998b that included the criteria to qualify for surgical intervention at that time.

Heylens G, Verroken C, De Cock S, T'Sjoen G, De Cuypere G. Effects of different steps in gender reassignment therapy on psychopathology: a prospective study of persons with a gender identity disorder. J Sex Med. 2014 Jan;11(1):119-26. Epub 2013 Oct 28.

Heylens et al. conducted a prospective, non-blinded observational study using a longitudinal design in which patients served as their own controls. They used a non-specific psychiatric test with normative data along with two self-designed questionnaires. The investigators assessed psychosocial adjustment and psychopathology in patients with gender identity disorders. Patients were to be sequentially evaluated prior to institution of hormonal therapy, then 3 to 6 months after the start of cross-sex hormone treatment, and then again one to 12 months after reassignment surgery. The Dutch version of the SCL-90R with eight subscales (agoraphobia, anxiety, depression, hostility, interpersonal sensitivity, paranoid ideation/psychoticism, and sleeping problems) and a global score (psycho-neuroticism) was used serially. A seven parameter questionnaire was used serially to assess changes in social function. Another cross-sectional survey assessed emotional state. The cohorts at each time point consisted of patients who were in the treatment cohort at the time and who had submitted survey responses.

Ninety of the patients who applied for reassignment surgery between June 2005 and March 2009 were recruited. Fifty seven entered the study. Forty-six (51.1% of the recruited population) underwent reassignment surgery. Baseline questionnaire information was missing for 3 patients. Baseline SCL-90 scores were missing for 1 patient but included SCL-90 scores from some of the 11 recruits who had not yet undergone reassignment surgery. Time point 2 (after hormone therapy) SCL-90 information was missing for 10, but included SCL-90 scores from some of the 11

recruits who had not yet undergone reassignment surgery. At time point 3, 42 (91.3% of those who underwent reassignment surgery) patients completed some part of the SCL-90 survey and the psychosocial questionnaires. Some questionnaires were incomplete. The investigators reported response rates of 73.7% for the psychosocial questionnaires and 82.5% for the SCL-90.

Of those who responded at follow-up after surgery, 88.1% reported having good friends; 52.4% reported the absence of a relationship; 47.6% had no sexual contacts; 42.9% lived alone; 40.5% were unemployed, retired, students, or otherwise not working; 2.4% reported alcohol abuse; and 9.3% had attempted suicide. The frequency of these parameters reportedly did not change statistically during the study interval, but there was no adjustment for the inclusion of patients who did not undergo surgery.

In a cross-sectional, self-report mood survey, of the 42 study entrants who completed the entire treatment regimen including reassignment surgery and the final assessment (refers to the initial 57) reported improved body-related experience (97.6%), happiness (92.9%), mood (95.2%), and self-confidence (78.6%) and reduced anxiety (81.0%). Of participants, 16.7% reported thoughts of suicide. Patients also reported on the intervention phase that they believed was most helpful: hormone initiation (57.9%), reassignment surgery (31.6%), and diagnostic-psychotherapy phase (10.5%).

The global "psycho-neuroticism" SCL-90R score, along with scores of 7 of the 8 subscales, at baseline were statistically more pathologic than the general population. After hormone therapy, the score for global "psycho-neuroticism" normalized and remained normal after reassignment surgery. More specifically the range for the global score is 90 to 450 with higher scores being more pathologic. The score for the general population was 118.3±32.4. The respective scores for the various gender dysphoric cohorts were 157.7±49.8 at initial presentation, 119.7±32.1 after hormone therapy, and 127.9±37.2 after surgery. The scores for the general population and the scores after either hormone treatment or surgical treatment did not differ.

Kockott G, Fahrner EM. Transsexuals who have not undergone surgery: a follow-up study. Arch Sex Behav. 1987 Dec;16 (6):511-22.

Kockott and Fahrner conducted a single center (Munich, Germany) prospective, observational study using a longitudinal design. Treatment cohorts were used as controls, and patients served as their own controls. The investigators assessed psychosocial adjustment in patients with gender identity issues. Patients were to have met DSM III criteria. Trans-sexuality, transvestitism, and homosexuality were differentiated. The criteria required for patients to receive hormone therapy and/or reassignment surgery were not delineated. After receiving hormone therapy, patients were later classified by surgical reassignment status (pre-operative and post-operative) and desire for surgery (unchanged desire, hesitant, and no longer desired).

The first investigative tool was a semi-structured in-person interview consisting of 125 questions. The second investigative tool was a scale that organized the clinical material into nine domains which were then scored on a scale. The Psychological Integration of Trans-sexuals (PIT) instrument developed according to the scale used by Hunt and Hampson (1980) for assessment of 17 post-operative patients. There were 15 interviews and two separate interviewers. There were 80 patients identified, but 58 (72.5%) patients (26 pre-operative; 32 post-operative) were ultimately included in the analysis. The duration of follow-up was longer for post-operative patients (6.5 years) than for pre-operative patients (4.6 years) (including time for one patient subsequently excluded). The mean age of the post-operative patients was 35.5±13.1 years, and the age of the patients who maintained a continued desire for surgery was 31.7±10.2 years. The age of the patients who hesitated about surgery was somewhat older, 40.3±9.4 years. The age of the patients who were no longer interested in surgery was 31.8±6.5 years. All were employed or in school at baseline. Patients with hesitation were financially better-off, had longer-standing relationships even if unhappy, and had a statistical tendency to place less value on sex than those with an unchanged wish for surgery.

Post-operative patients more frequently reported contentment with the desired gender and the success of adaption to the gender role than the pre-operative patients with a persistent desire for surgery. Post-operative patients more frequently reported sexual satisfaction than pre-operative patients with a continuing desire for surgery. Post-operative patients also more frequently reported financial sufficiency and employment than pre-operative patients with a persistent desire for surgery. Suicide attempts were stated to be statistically less frequent in the post-surgical cohort.

Psychosocial adjustment scores were in the low end of the range with "distinct difficulties" (19-27) at the initial evaluation for the post-operative patients (19.7), the pre-operative patients with a persistent wish for surgery (20.2), and the hesitant patients (19.7). At initial evaluation, psychosocial adjustment scores for patients no longer wanting surgery were at the high end of the range with "few difficulties" (10-18). At the final evaluation, Psychosocial adjustment scores were at the high end of the range "few difficulties" (10-18) for the post-operative patients (13.2) and the patients no longer wanting surgery (16.5). Psychosocial adjustment scores at the final evaluation were in the borderline range between "few difficulties" (10-18) and "distinct difficulties" (19-27) for both the pre-operative patients with a persistent desire for surgery (18.7), and the hesitant patients (19.1).

The changes in the initial score and the final follow-up score within each group were tracked and reported to be statistically significant for the post-operative group, but not for the other groups. Statistical differences between groups were not presented. Moreover, the post-operative patients had an additional test immediately prior to surgery. The first baseline score (19.7) would have characterized the patients as having "distinct difficulties" in psychosocial adjustment while the second baseline score (16.7) would have categorized the patients as having "few difficulties" in psychosocial adjustment despite the absence of any intervention except the prospect of having imminent reassignment surgery. No statistics reporting on the change between scores of the initial test and the test immediately prior to surgery and the change between scores of the test immediately prior to surgery and the final follow-up were provided.

Meyer JK, Reter DJ. Sex reassignment. Follow-up. Arch Gen Psychiatry. 1979 Aug;36(9):1010-5. (United States study)

Meyer and Reter conducted a single-center (Baltimore, Maryland, U.S.) prospective, non-blinded, observational study using a longitudinal design and retrospective baseline data. Interview data were scored with a self-designed tool. There were treatment control cohorts, and patients served as their own controls. The investigators assessed patients with gender dysphoria. The 1971 criteria for surgery required documented cross-sex hormone use as well as living and working in the desired gender for at least one year in patients subsequently applying for surgery. Clinical data including initial interviews were used for baseline data. In follow-up, the investigators used extensive two to four hour interviews to collect information on (a) objective criteria of adaptation, (b) familial relationships and coping with life milestones, and (c) sexual activities and fantasies. The objective criteria, which were the subject of the publication, included employment status (Hollingshead job level), cohabitation patterns, and need for psychiatric intervention. The investigators designed a scoring mechanism for these criteria and used it to determine a global adjustment score. The score value or the change score that was considered to be biologically significant was not pre-specified in the methods.

The clinic opened with 100 patients, but when the follow-up was completed, 52 patients were interviewed and 50 gave consent for publication. Of these, 15 (four female-to-male, 11 male-to-female; ratio 1:2.8) were part of the initial operative cohort, 14 (one female-to-male; 13 male-to-female; ratio 1:13) later underwent reassignment surgery at the institution or elsewhere, and 21 (five female-to-male; 16 male-to-female; ratio 1:3.2) did not undergo surgery. The mean ages of these cohorts were 30.1, 30.9, and 26.7 years respectively. The mean follow-up time was 62 months (range 19-142) for those who underwent surgery and 25 months (range 15-48) for those who did not. Socioeconomic status was lowest in those who subsequently underwent reassignment surgery.

Of patients initially receiving surgery, 33% had some type of psychiatric contact prior to the initial clinic evaluation and 8% had psychiatric contact during the follow-up. Of the patients who had not under gone surgery or who had done so later, 72% had some type of psychiatric contact prior to the initial clinic evaluation and 28% had psychiatric contact during follow-up. There was a single female-to-male patient with multiple surgical complications who sought partial reassignment surgery reversal.

The adjustment scores improved over time with borderline statistical significance for the initial operative group and with statistical significance for the never operated group. The absolute score value at follow-up was the same for both groups (1.07+1.53 and 1.10+1.97 respectively). By contrast, the adjustment scores did not improve for those who were not in the cohort initially approved for surgery, but who subsequently underwent surgery later. This was particularly true if the surgery was performed elsewhere. The absolute score value at follow-up was 0.21+1.89.

Related papers include Meyer et al. (1971), Meyer et al. (1974a-d), and Derogatis et al. (1978) along with commentary response by Fleming et al. (1980).

Rakic Z, Starcevic V, Maric J, Kelin K. The outcome of sex reassignment surgery in Belgrade: 32 patients of both sexes. Arch Sex Behav. 1996 Oct;25(5):515-25.

Rakic et al. single-center (Belgrade, Yugoslavia) conducted a prospective, non-blinded, observational study using a cross-sectional design and an investigator- designed quality of life tool that asked longitudinal (pre- and post-treatment) questions. Patients served as their own controls. The authors state that the study was not designed to assess the predictors of poor outcomes.

The investigators assessed global satisfaction, body image, relationships, employment status, and sexual function in patients with gender dysphoria who underwent reassignment surgery between 1989 and 1993 and were at least six months post-operative. The criteria to qualify for gender surgery were delineated (1985 standards from the Harry Benjamin International Gender Dysphoria Association) and included cross-gender behavior for at least one year and sexual orientation to non-natal sex. The questionnaire consisted of 10 questions using yes/no answers or Likert-type scales. Findings were descriptive without statistical analysis. As such, changes or differences considered to be biologically significant were not pre-specified, and there were no adjustments for multiple comparisons.

Of the 38 patients who had undergone reassignment surgery, 34 were eligible for the study and 32 participated in the study (two were lost to follow-up and four were in the peri-operative period) - 10 (31.2%) female-to-male and 22 (68.8%) male-to-female (ratio 1:2.2). The duration of follow-up was 21.8 ±13.4 months (range 6 months to 4 years). The age was female-to-male 27.8±5.2 (range 23-37) and male-to-female 26.4±7.8 (range 19-47).

Using an investigator-designed quality of life tool, all patients reported satisfaction with having undergone the surgery. Of the total participants, four (12.5%) (all male-to-female) and eight (25%) (87.5% male-to-female) reported complete dissatisfaction or partial satisfaction with their appearance. Regarding relationships, 80% of female-to-male and 100% of male-to-female patients were dissatisfied with their relationships with others prior to surgery; whereas, no female-to-male patients and 18.1% of male-to-female patients were dissatisfied with relationships after surgery. Regarding sexual partners, 60% of female-to-male and 72.7% of male-to-female patients reported not having a sexual partner prior to surgery; whereas, 20% of female-to-male patients and 27.3% of male-to-female patients did not have a sexual partner after surgery. Of those with partners at each time interval, 100% of female-to-male and 50% of male-to-female patients reported not experiencing orgasm prior to surgery; whereas, 75% of female-to-male and 37.5% of male-to-female patients reported not experiencing orgasm after surgery.

Ruppin U, Pfäfflin F. Long-term follow-up of adults with gender identity disorder. Arch Sex Behav. 2015 Jul;44(5):1321-9. Epub 2015 Feb 18.

Ruppin and Pfafflin conducted a single-center (Ulm, Germany) partially prospective, non-blinded, observational study using a longitudinal design and non-specific psychometric tests and a self-designed interview tool and questionnaire. Patients served as their own controls.

The investigators assessed psychological symptoms, interpersonal difficulties, gender role stereotypes, personality characteristics, societal function, sexual function, and satisfaction with new gender role in patients with gender dysphoria. Patients were required to have met the ICD-10 criteria for trans-sexualism, been seen by the clinic by prior to 2001, and completed an official change in gender including name change prior to 2001. Assessment tools included German versions of standardized surveys with normative data: the SCL 90R, the Inventory of Interpersonal Problems (IIP), Bem Sex Role Inventory (BSRI), and the Freiburg Personality Inventory (FPI-R), along with semi-structured interviews with self-designed questionnaires. The prospective survey results were compared to retrospective survey results. Changes or inter-group differences considered to be biologically significant were not pre-specified. Diagnostic cut points were not provided. Statistical corrections for multiple comparisons were not included.

Overall, 140 patients received recruitment letters and then 71 (50.7%) agreed to participate. Of these participants, 36 (50.7%) were female-to-male; 35 (49.3%) were male-to-female (ratio 1:0.97). The ages of the patients were: 41.2±5.78 years (female-to-male) and 52.9±10.82 years (male-to-female). The intervals for follow-up were 14.1±1.97 years and 13.7±2.17 years, respectively.

All female-to-male patients had undergone mastectomy; 91.7% had undergone oopherectomy and/or hysterectomy; 61.1% had undergone radial forearm flap phalloplasty or metaoidioplasty. Of male-to-female patients, 94.3% had undergone vaginoplasty and perhaps an additional procedure (breast augmentation, larynx surgery, or vocal cord surgery). Two male-to-female patients had not undergone any reassignment surgery, but were still included in the analyses.

A total of 68 patients ranked their well-being as 4.35±0.86 out of five (three patients did not respond to this question). Of respondents, 40% reported not being in a steady relationship. Regular sexual relationships were reported by 57.1% of 35 female- to-male respondents and 39.4% of 33 male-to-female respondents (three patients did not respond to this question). A total of 11 patients reported receiving out-patient psychotherapy; 69 did not express a desire for gender role reversal (two did not respond to this question). The response rate was less than 100% for most of the self-designed survey questions.

Changes from the initial visit to the follow-up visit were assessed for the SCL-90R in 62 of 71 patients. The effect size was statistically significant and large only for the "Interpersonal Sensitivity" scale (one of 10 parameters). The absolute magnitude of mean change was small: from 0.70±0.67 to 0.26±0.34 (scale range 0-4). The duration of follow-up did not correlate with the magnitude of change on the various scales. Differences in baseline SCL-90R scores of 62 participants were compared with the score of 63 of the 69 eligible recruits who declined to enter the study and were notable for higher "Depression" scores for the latter.

Changes from the initial visit to the follow-up visit were assessed for the IIP in 55 of 71 patients. The effect size was statistically significant and large only for the "Overly Accommodating" scale (one of eight parameters). The absolute magnitude of mean change was small: from 11.64±5.99 to 7.04±4.73 (scale range 0-32). The duration of follow-up did not correlate with the magnitude of change on the various scales.

Changes from the initial visit to the follow-up visit were assessed for the FPI-R in 58 of 71 patients. The effect size was statistically significant and large only for the "Life Satisfaction" scale (one of 12 parameters). The absolute magnitude of mean change was substantive: from 4.43±2.99 to 8.31±2.63 (scale range 0-12). The duration of follow-up did not correlate with the magnitude of change on the various scales.

Changes from the initial visit to the follow-up visit were assessed for the BSRI in 16 of 36 female to male patients and 19 of 35 male to female patients. The "Social Desirability" score increased for the female-to-male respondents. At endpoint, both categories of respondents reported androgynous self-images.

This current report is an update of prior publications by Pfafflin including work with Junge which was published in a variety of formats and initially in German.

Smith YL, Van Goozen SH, Kuiper AJ, Cohen-Kettenis PT. Sex reassignment: outcomes and predictors of treatment for adolescent and adult transsexuals. Psychol Med. 2005 Jan;35(1):89-99.

Smith et al. conducted a single-center (Amsterdam, Netherlands) prospective, non-blinded, observational study using a longitudinal design and psychological function tools. Patients served as their own control prior to and after reassignment surgery. The investigators assessed gender dysphoria, body dissatisfaction, physical appearance, psychopathology, personality traits, and post-operative function in patients with gender dysphoria. Patients underwent some aspect of reassignment surgery. The test instruments included the Utrecht Gender Dysphoria Scale (12 items), the Body Image Scale adapted for a Dutch population (30 items), Appraisal of Appearance Inventory (3 observers, 14 items), the Dutch Short MMPI (83 items), the Dutch version of the Symptom Checklist (SCL)(90 items), and clinic-developed or modified questionnaires. Pre-treatment data was obtained shortly after the initial interview. Post- surgery data were acquired at least one year post reassignment surgery.

Three hundred twenty five consecutive adolescents and adults were screened for the study. One-hundred three (29 [28.2%] female-to-male patients and 74 [71.8%] male-to-female patients [ratio 1:2.6]) never started hormone therapy; 222 (76 [34.2%] female-to-male patients and 146 [65.8%] male-to-female patients [ratio 1:1.9]) initiated hormone therapy. Of the patients who started hormone therapy, 34 (5 [14.7%] female-to-male patients and 29 [85.3%] male-to-female patients [ratio 1:5.8]) discontinued hormone therapy.

Subsequently, the study analysis was limited to adults. One hundred sixty-two (58 [35.8%] female-to-male and 104 [64.2%] male-to-female [ratio 1:1.8]) were eligible and provided pre-surgical test data, and 126 (77.8% of eligible adults) (49 [38.9%] female-to-male and 77 [61.1%] male-to-female [ratio 1:1.6]) provided post-surgical data. For those patients who completed reassignment, the mean age at the time of surgical request was 30.9 years (range 17.7-68.1) and 35.2 years (range 21.3-71.9) years at the time of follow-up. The intervals between hormone treatment initiation and surgery and surgery and follow-up were 20.4 months (range 12 to 73) and 21.3 months (range 12 to 47) respectively.

Of the 126 adults who provided post-surgical data, 50 (40.0%) reported having a steady sexual partner, three (2.3%) were retired, and 58 (46.0%) were unemployed. Regarding regret, six patients expressed some regret regarding surgery, but did not want to resume their natal gender role, and one male-to-female had significant regret and would not make the same decision.

Post-surgery Utrecht dysphoria scores dropped substantially and approached reportedly normal values. The patients' appearance better matched their new gender. No one was dissatisfied with his/her overall appearance at follow-up. Satisfaction with primary sexual, secondary sexual, and non-sexual body traits improved over time. Male-to-female patients, however, were more dissatisfied with the appearance of primary sex traits than female-to-male patients. Regarding mastectomy, 27 of 38 (71.1%) female-to-male respondents (not including 11 non-respondents) reported incomplete satisfaction with their mastectomy procedure. For five of these patients, the incomplete satisfaction was because of scarring. Regarding vaginoplasty, 20 of 67 (29.8%) male-to-female respondents (not including 10 non-respondents) reported incomplete satisfaction with their vaginoplasty.

Most of the MMPI scales were already in the normal range at the time of initial testing and remained in the normal

range after surgery. SCL global scores for psycho- neuroticism were minimally elevated before surgery 143.0±40.7 (scoring range 90 to 450) and normalized after surgery 120.3±31.4. (An analysis using patient level data for only the completers was not conducted.)

Udeze B, Abdelmawla N, Khoosal D, Terry T. Psychological functions in male-to- female people before and after surgery. Sexual and Relationship Therapy. 2008 May; 23(2):141-5. (Not in PubMed) and Megeri D, Khoosal D. Anxiety and depression in males experiencing gender dysphoria. Sexual and Relationship Therapy. 2007 Feb; 22(1):77-81. (Not in PubMed)

Udeze et al. conducted a single-center (Leicester, United Kingdom) prospective, non-blinded, longitudinal study assessing a randomized subset of patients who had completed a non-specific psychological function tool prior to and after male-to-female reassignment surgery. Patients served as their own controls. The investigators used the WPATH criteria for patient selection. Psychiatric evaluations were routine. All patients selected for treatment were routinely asked to complete the self-administered SCL-90R voluntarily on admission to the program and post-operatively. A post-operative evaluations (psychiatric and SCL-90R assessment) were conducted within six months to minimize previously determined loss rates. The patient pool was domestic and international. There were 546 gender dysphoric patients from all over the United Kingdom and abroad, of whom 318 (58.2%) progressed to surgery. Of these, 127 were from the local Leicester area in the United Kingdom and 38 (29.9%) progressed to surgery. The mean age for the selected male-to-female patients at the time of study was 47.33±13.26 years (range 25 to 80) and reflected an average wait time for surgery of 14 months (range 2 months to 6 years). For this investigation, 40 male-to-female subjects were prospectively selected.

The raw SCL-90 global scores for psycho-neuroticism were unchanged over time: 48.33 prior to surgery and 49.15 after surgery. If the scale was consistent with T-scoring, the results were non-pathologic. No psychiatric disorders were otherwise identified prior to or after surgery.

Investigators from the same clinical group (Megeri, Khoosal, 2007) conducted additional testing to specifically address anxiety and depression with the Beck Depression Inventory, General Health Questionnaire (with 4 subscales), HADS, and Spielberger State and Trait Anxiety Questionnaire (STAI-X1 and STA-X2). The test population and study design appear to be the same. No absolute data were presented. Only changes in scores were presented. There were no statistically significant changes.

e. Randomized, surgical patients, longitudinal, with controls

Mate-Kole C, Freschi M, Robin A. A controlled study of psychological and social change after surgical gender reassignment in selected male transsexuals. Br J Psychiatry. 1990 Aug;157:261-4.

Mate-Kole at al. conducted a prospective, non-blinded, controlled, randomized, longitudinal study using investigator-designed patient self-report questionnaires and non-specific psychological tests with some normative data. The investigators assessed neuroticism and sex role in natal males with gender dysphoria who had qualified for male-to-female reassignment surgery at a single-center specialty clinic (London, United Kingdom). Forty sequential patients were alternately assigned to early reassignment surgery or to standard wait times for reassignment surgery. Patients were evaluated after acceptance and 2 years later. The criteria used to qualify for gender surgery were the 1985 standards from the Harry Benjamin International Gender Dysphoria Association. These included a ≥2 year desire to change gender, a ≥1 year demonstrable ability to live and be self-supporting in the chosen gender, and psychiatric assessment for diagnosis and reassessment at six months for diagnostic confirmation and exclusion of psychosis.

Reassignment surgery was defined as orchidectomy, penectomy, and construction of a neo-vagina. The instruments used were the CCEI for psychoneurotic symptoms and the Bem Sex Role Inventory along with an incompletely

described investigator-designed survey with questions about social life and sexual activity.

The mean age and range of the entire cohort was 32.5 years (21-53). Members of the early surgery cohort had a history of attempted suicide (one patient), psychiatric treatment for non-gender issues (six patients), and first degree relatives with psychiatric histories (four patients). Members of the standard surgery cohort were similar, with a history of attempted suicide (two patients), psychiatric treatment for non-gender issues (five patients), and first degree relatives with psychiatric histories (six patients). The early surgery group had surgery approximately 1.75 years prior to the follow-up evaluation. In both groups, cross-dressing began at about age 6.

At baseline, the Bem Sex Role Inventory femininity scores were slightly higher than masculinity scores for both cohorts and were similar to Bem North American female normative scores. The scores did not change in either group over time.

At baseline, the scores for the CCEI individual domains (free floating anxiety, phobic anxiety, somatic anxiety, depression, hysteria, and obsessionality) were similar for the cohorts. The total CCEI scores for the two cohorts were consistent with moderate symptoms (Birchnell et al. 1988). Over the two year interval, total CCEI scores increased for standard wait group and approached the relatively severe symptom category. During the same interval, scores dropped into the asymptomatic rage for the post-operative patients.

The investigator-designed survey assessed changes in social and sexual activity of the prior two years, but the authors only compared patients in a given cohort to themselves. Though the researchers did not conduct statistical studies to compare the differences between the two cohorts, they did report increased participation in some, but not all, types of social activities such as sports (solo or group), dancing, dining out, visiting pubs, and visiting others. Sexual interest also increased. By contrast, pre-operative patients did not increase their participation in these activities.

2. External Technology Assessments

a. CMS did not request an external technology assessment (TA) on this issue.

b. There were no AHRQ reviews on this topic.

c. There are no Blue Cross/Blue Shield Health Technology Assessments written on this topic within the last three years.

d. There were two publications in the COCHRANE database, and both were tangentially related. Both noted that there are gaps in the clinical evidence base for gender reassignment surgery.
Twenty Years of Public Health Research: Inclusion of Lesbian, Gay, Bisexual, and Transgender Populations Boehmer U. Am J Public Health. 2002; 92: 1125–30.

"Findings supported that LGBT issues have been neglected by public health research and that research unrelated to sexually transmitted diseases is lacking."

A systematic review of lesbian, gay, bisexual and transgender health in the West Midlands region of the UK compared to published UK research. West Midlands Health Technology Assessment Collaboration. Health Technology Assessment Database. Meads, et al., 2009. No.3.

"Further research is needed but must use more sophisticated designs with comparison groups. This systematic review demonstrated that there are so many gaps in knowledge around LGBT health that a wide variety of studies are needed."

e. There were no National Institute for Health and Care Excellence (NICE) reviews/guidance documents on this

topic.

f. There was a technology assessment commissioned by the New Zealand Ministry of Health and conducted by New Zealand Health Technology Assessment (NZHTA) (Christchurch School of Medicine and the University of Otago).

Tech Brief Series: Transgender Re-assignment Surgery Day P. NZHTA Report. February 2002;1(1). http://nzhta.chmeds.ac.nz/publications/trans_gender.pdf

The research questions included the following:
1. Are there particular subgroups of people with transsexualism who have met eligibility criteria for gender reassignment surgery (GRS) where evidence of effectiveness of that surgery exists?

2. If there is evidence of effectiveness, what subgroups would benefit from GRS?"

The authors concluded that there was not enough evidence to answer either of the research questions.

3. Medicare Evidence Development & Coverage Advisory Committee (MEDCAC) Meeting

CMS did not convene a MEDCAC meeting.

4. Evidence-Based Guidelines

a. American College of Obstetricians and Gynecologists (ACOG)

Though ACOG did not have any evidence-based guidelines on this topic, they did have the following document:
Health Care for Transgender Individuals: Committee Opinion
Committee on Health Care for Underserved Women; The American College of Obstetricians and Gynecologists. Dec 2011, No. 512. Obstet Gyncol. 2011;118:1454-8.

"Questions [on patient visit records] should be framed in ways that do not make assumptions about gender identity, sexual orientation, or behavior. It is more appropriate for clinicians to ask their patients which terms they prefer. Language should be inclusive, allowing the patient to decide when and what to disclose. The adoption and posting of a nondiscrimination policy can also signal health care providers and patients alike that all persons will be treated with dignity and respect. Assurance of confidentiality can allow for a more open discussion, and confidentiality must be ensured if a patient is being referred to a different health care provider. Training staff to increase their knowledge and sensitivity toward transgender patients will also help facilitate a positive experience for the patient."

b. American Psychiatric Association

Report of the American Psychiatric Association Task Force on Treatment of Gender Identity Disorder. Byne, W, Bradley SJ, Coleman E, Eyler AE, Green R, Menvielle EJ, Meyer-Bahlburg HFL, Richard R. Pleak RR, Tompkins DA. Arch Sex Behav. 2012; 41:759–96.

The American Psychiatric Association (APA) was unable to identify any Randomized Controlled Trials (RTCs) regarding mental health issues for transgender individuals.

"There are some level B studies examining satisfaction/regret following sex reassignment (longitudinal follow-up after an intervention, without a control group); however, many of these studies obtained data retrospectively and without a control group (APA level G). Overall, the evidence suggests that sex reassignment is associated with an

improved sense of well-being in the majority of cases, and also indicates correlates of satisfaction and regret. No studies have directly compared various levels of mental health screening prior to hormonal and surgical treatments on outcome variables; however, existing studies suggest that comprehensive mental health screening may be successful in identifying those individuals most likely to experience regrets."

Relevant Descriptions of APA Evidence Coding System/Levels:

[B] Clinical trial. A prospective study in which an intervention is made and the results of that intervention are tracked longitudinally. Does not meet standards for a randomized clinical trial."

[G] Other. Opinion-like essays, case reports, and other reports not categorized above."

c. Endocrine Society

Endocrine Treatment of Transsexual Persons: an Endocrine Society Clinical Practice Guideline.

Hembree WC, Cohen-Kettenis P, Delemarre-van de Waal HA, Gooren LJ, Meyer WJ 3rd, Spack NP, Tangpricha V, Montori VM; Endocrine Society. J Clin Endocrinol Metab. 2009; 94:3132-54.

This guideline primarily addressed hormone management and surveillance for complications of that management. A small section addressed surgery and found the quality of evidence to be low.

"This evidence-based guideline was developed using the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) system to describe the strength of recommendations and the quality of evidence, which was low or very low."

d. World Professional Association for Transgender Health (WPATH)

Standards of Care for the Health of Transsexual, Transgender, and Gender-Nonconforming People (Version 7). Coleman E, Bockting W, Botzer M, Cohen-Kettenis P, DeCuypere G, Feldman J, Fraser L, Green J, Knudson G, Meyer WJ, Monstrey S, Adler RK, Brown GR, Devor AH, Ehrbar R, Ettner R, Eyler E, Garofalo R, Karasic DH, Lev AI, Mayer G, Meyer-Bahlburg H, Hall BP, Pfäfflin F, Rachlin K, Robinson B, Schechter LS, Tangpricha V, van Trotsenburg M, Vitale A, Winter S, Whittle S, Kevan R. Wylie KR, Zucker K.
www.wpath.org/_files/140/files/Standards%20of%20Care,%20V7%20Full%20Book.pdf
Int J Transgend. 2011;13:165–232.

The WPATH is "an international, multidisciplinary, professional association whose mission is to promote evidence-based care, education, research, advocacy, public policy, and respect in transsexual and transgender health."

WPATH reported, "The standards of care are intended to be flexible in order to meet the diverse health care needs of transsexual, transgender, and gender-nonconforming people. While flexible, they offer standards for promoting optimal health care and guiding the treatment of people experiencing gender dysphoria—broadly defined as discomfort or distress that is caused by a discrepancy between a person's gender identity and that person's sex assigned at birth (and the associated gender role and/or primary and secondary sex characteristics) (Fisk, 1974; Knudson, De Cuypere, & Bockting, 2010b)."

The WPATH standards of care (SOC) "acknowledge the role of making informed choices and the value of harm-

reduction approaches."

The SOC noted, "For individuals seeking care for gender dysphoria, a variety of therapeutic options can be considered. The number and type of interventions applied and the order in which these take place may differ from person to person (e.g., Bockting, Knudson, & Goldberg, 2006; Bolin, 1994; Rachlin, 1999; Rachlin, Green, & Lombardi, 2008; Rachlin, Hansbury, & Pardo, 2010). Treatment options include the following:

- Changes in gender expression and role (which may involve living part time or full time in another gender role, consistent with one's gender identity);
- Hormone therapy to feminize or masculinize the body;
- Surgery to change primary and/or secondary sex characteristics (e.g., breasts/chest, external and/or internal genitalia, facial features, body contouring);
- Psychotherapy (individual, couple, family, or group) for purposes such as exploring gender identity, role, and expression; addressing the negative impact of gender dysphoria and stigma on mental health; alleviating internalized transphobia; enhancing social and peer support; improving body image; or promoting resilience."

e. American Psychological Association

Suggested citation until formally published in the American Psychologist: American Psychological Association. (2015): *Guidelines for Psychological Practice with Transgender and Gender Nonconforming People Adopted by the Council of Representatives, August 5 & 7, 2015. www.apa.org/practice/guidelines/transgender.pdf*

"The purpose of the Guidelines for Psychological Practice with Transgender and Gender Nonconforming People (hereafter Guidelines) is to assist psychologists in the provision of culturally competent, developmentally appropriate, and trans-affirmative psychological practice with TGNC people."

"These Guidelines refer to psychological practice (e.g., clinical work, consultation, education, research, training) rather than treatment."

5. Other Reviews

a. Institute of Medicine (IOM)

The Health of Lesbian, Gay, Bisexual, and Transgender People: Building a Foundation for Better Understanding. Robert Graham (Chair); Committee on Lesbian, Gay, Bisexual, and Transgender Health Issues and Research Gaps and Opportunities. (Study Sponsor: The National Institutes of Health). Issued March 31, 2011. http://www.nationalacademies.org/hmd/Reports/2011/The-Health-of-Lesbian-Gay-Bisexual-and- Transgender-People.aspx

"To advance understanding of the health needs of all LGBT individuals, researchers need more data about the demographics of these populations, improved methods for collecting and analyzing data, and an increased participation of sexual and gender minorities in research. Building a more solid evidence base for LGBT health concerns will not only benefit LGBT individuals, but also add to the repository of health information we have that pertains to all people."

"Best practices for research on the health status of LGBT populations include scientific rigor and respectful involvement of individuals who represent the target population. Scientific rigor includes incorporating and monitoring culturally competent study designs, such as the use of appropriate measures to identify participants and

implementation processes adapted to the unique characteristics of the target population. Respectful involvement refers to the involvement of LGBT individuals and those who represent the larger LGBT community in the research process, from design through data collection to dissemination."

b. National Institutes of Health (NIH)

National Institutes of Health Lesbian, Gay, Bisexual, and Transgender (LGBT) Research Coordinating Committee. Consideration of the Institute of Medicine (IOM) report on the health of lesbian, gay, bisexual, and transgender (LGBT) individuals. Bethesda, MD: National Institutes of Health; 2013. http://report.nih.gov/UploadDocs/LGBT%20Health%20Report_FINAL_2013-01-03-508%20compliant.pdf

In response to the IOM report, the NIH LBGT research Coordinating Committee noted that most of the health research for this set of populations is "focused in the areas of Behavioral and Social Sciences, HIV (human immunodeficiency virus)/AIDS, Mental Health, and Substance Abuse. Relatively little research has been done in several key health areas for LGBT populations including the impact of smoking on health, depression, suicide, cancer, aging, obesity, and alcoholism."

6. Pending Clinical Trials

ClinicalTrials.gov
There is one currently listed and recently active trial directed at assessment of the clinical outcomes pertaining to individuals who have had gender reassignment surgery. The study appears to be a continuation of work conducted by investigators cited in the internal technology assessment.

NCT01072825 (Ghent, Belgium sponsor) European Network for the Investigation of Gender Incongruence (ENIGI) is assessing the physical and psychological effects of the hormonal treatment of transgender subjects in two years prior to reassignment surgery and subsequent to surgery. This observational cohort study started in 2010 and is still in progress.

7. Consultation with Outside Experts

Consistent with the authority at 1862(l)(4) of the Act, CMS consulted with outside experts on the topic of treatment for gender dysphoria and gender reassignment surgery.

Given that the majority of the clinical research was conducted outside of the United States, and some studies either took place in or a suggested continuity-of-care and coordination-of-care were beneficial to health outcomes, we conducted expert interviews with centers across the U.S. that provided some form of specialty-focused or coordinated care for transgender patients. These interviews informed our knowledge about the current healthcare options for transgender people, the qualifications of the professionals involved, and the uniqueness of treatment options. We are very grateful to the organizations that made time to discuss treatment for gender dysphoria with us.

From our discussions with the all of the experts we spoke with, we noted the following practices in some centers: (1) specialized training for all staff about transgender healthcare and transgender cultural issues; (2) use of an intake assessment by either a social worker or health care provider that addressed physical health, mental health, and other life factors such as housing, relationship, and employment status; (3) offering primary care services for transgender people in addition to services related to gender-affirming therapy/treatments; (4) navigators who connected patients with name-change information or other legal needs related to gender; (5) counseling for individuals, groups, and families; (6) an informed-consent model whereby individuals were often referred to as

"clients" instead of "patients," and (7) an awareness of depression among transgender people (often measured with tools such as the Adult Outcomes Questionnaire and the Patient Health Questionnaire).

8. Public Comments

We appreciate the thoughtful public comments we received on the proposed decision memorandum. In CMS' experience, public comments sometimes cite the published clinical evidence and give CMS useful information. Public comments that give information on unpublished evidence such as the results of individual practitioners or patients are less rigorous and therefore less useful for making a coverage determination. CMS uses the initial public comments to inform its proposed decision. CMS responds in detail to the public comments on a proposed decision when issuing the final decision memorandum. All comments that were submitted without personal health information may be viewed in their entirety by using the following link: https://www.cms.gov/medicare-coverage-database/details/nca-view-public-comments.aspx?NCAId=282&ExpandComments=n#Results

a. Initial Comment Period: December 3, 2015 – January 2, 2016

During the initial comment period, we received 103 comments. Of those, 78% supported coverage of gender reassignment surgery, 15% opposed, and 7% were neutral. The majority of comments supporting coverage were from individuals and advocacy groups.

b. Second Comment Period: June 2, 2016 – July 2, 2016

During the second 30-day public comment period, we received a total of 45 public comments, 7 of which were not posted on the web due to personal health information content. Overall, 82% supported coverage of gender reassignment surgery, 11% opposed, and 7% were neutral or silent in their comment whether they supported or opposed coverage. Half of the comments were submitted by individuals who expressed support for coverage of gender reassignment surgery (51%). We also received comments from physicians, providers, and other health professionals who specialize in healthcare for transgender individuals (17%). We received one comment from a municipality, the San Francisco Department of Public Health. Associations (American Medical Association, American College of Physicians, American Academy of Nursing, American Psychological Association, and LBGT PA Caucus) and advocates (Center for American Progress with many other signatories, Jamison Green & Associates) also submitted comments.

Below is a summary of the comments CMS received. In some instances, commenters identified typographical errors, context missed, and opportunities for CMS to clarify wording and classify articles for ease of reading in the memorandum. As noted earlier, when appropriate and to the extent possible, we updated the decision memorandum to reflect those corrections, improved the context, and clarified the language. In light of public comments, we re-evaluated the evidence and our summaries. We updated our summaries of the studies and clarified the language when appropriate.

1. Contractor Discretion and National Coverage Determination

Comment: Some commenters, including advocates, associations, and providers, supported CMS' decision for MAC contractor discretion/case-by-case determination for gender reassignment surgery. One stakeholder stated, "We agree with the conclusion that a NCD is not warranted at this time."

Response: We appreciate the support and understanding among stakeholders for our proposed decision to have the MACs determine coverage on a case-by-case basis. We have clarified in this final decision memorandum that

coverage is available for gender reassignment surgery when determined reasonable and necessary and not otherwise excluded by any other relevant statutory requirements by the MAC on a case-by-case basis. "The case-by-case model affords more flexibility to consider a particular individual's medical condition than is possible when the agency establishes a generally applicable rule." (78 Fed. Reg. 48165 (August 7, 2013)).

Comment: Some commenters cautioned that CMS' choice to not issue a NCD at this time must not be interpreted as a national non-coverage determination or used in any way to inappropriately restrict access to coverage for transgender Medicare beneficiaries or other transgender individuals. Multiple commenters indicated their disappointment that CMS did not propose a National Coverage Determination (NCD) and, instead, chose to continue to have local MACs make the coverage decisions on a case-by-case basis. Commenters stated this could result in variability in coverage.

Response: We appreciate the comments. We are not issuing a NCD at this time because the available evidence for gender reassignment surgery provides limited data on specific health outcomes and the characteristics of specific patient populations that might benefit from surgery. In the absence of a NCD, the MAC's use the same statutory authority as NCDs, section 1862(a)(1)(A) of the Social Security Act (the Act). Under section 1862(a)(1)(A) an item or service must be reasonable and necessary for the diagnosis or treatment of illness or injury or to improve the functioning of a malformed body member. While CMS did not have enough evidence to issue a NCD, we believe the MACs will be able to make appropriate coverage decisions on a case-by-case basis taking into account individual characteristics of the Medicare beneficiary.

Comment: Some commenters sought a NCD that would establish guidelines for coverage and include elements such as a prescribed set of surgeries and a shared decision making element.

Response: For the reasons stated above, we are not issuing a NCD at this time and, therefore, are not establishing specific gender reassignment surgery coverage guidelines for the Medicare program. We generally agree that shared decision-making is a fundamental approach to patient-centered health care decisions and strongly encourage providers to use these types of evidence based decision aids. We have not found a shared decision aid on GRS and encourage the development of this necessary element to conduct formal shared-decision making.

Comment: Some commenters expressed concern that there is a misunderstanding of transgender individuals as having a disorder or being abnormal. Some commenters indicated a history of bias and discrimination within society as a whole that has occurred when transgender individuals have sought health care services from the medical community. Some commenters are concerned that the decision not to make a NCD will subject individuals seeking these services to corporate bias by Medicare contractors.

Response: We acknowledge the public comments and that there has been a transformation in the treatment of individuals with gender dysphoria over time. In this NCA, we acknowledge that gender dysphoria is a recognized Diagnostic and Statistical Manual of Mental Disorders (DSM) condition. With respect to the concern about potential bias by Medicare contractors, we have no reason to expect that the judgments made on specific claims will be influenced by an overriding bias, hostility to patients with gender dysphoria, or discrimination. Moreover, the Medicare statue and our regulations provide a mechanism to appeal an adverse initial decision if a claim is denied and those rights may include the opportunity for judicial review. We believe the Medicare appeals process would provide an opportunity to correct any adverse decision that was perceived to have been influenced by bias.

Comment: Commenters mentioned the cost of gender reassignment surgery could influence MAC decision making.

Response: The decisions on whether to cover gender reassignment surgery in a particular case are made on the basis of the statutory language in section 1862 of the Social Security Act that establish exclusions from coverage and

would not depend on the cost of the procedure.

2. Coverage with Evidence Development and Research

Comment: In our proposed decision memorandum, we specifically invited comments on whether a study could be developed that would support coverage with evidence development (CED). One organization commented, "We strongly caution against instituting a CED protocol." Commenters were opposed to coverage limited in clinical trials, suggesting that such coverage would restrict access to care. Several commenters provided suggested topics for clinical research studies for the transgender population. For example, one commenter suggested a study of non-surgical treatment for transgender children prior to puberty.

Response: While we appreciate the comments supporting further research, in general, for gender reassignment surgery, we agree that CED is not the appropriate coverage pathway at this time. While CED is an important mechanism to support research and has the potential to be used to help address gaps in the current evidence, we are not aware of any available, appropriate studies, ongoing or in development, on gender reassignment surgery for individuals with gender dysphoria that could be used to support a CED decision.

3. Gender Reassignment Surgery as Treatment

Comment: One group of commenters requested that CMS consider that, "The established medical consensus is that GRS is a safe, effective, and medically necessary treatment for many individuals with gender dysphoria, and for some individuals with severe dysphoria, it is the only effective treatment."

Response: We acknowledge that GRS may be a reasonable and necessary service for certain beneficiaries with gender dysphoria. The current scientific information is not complete for CMS to make a NCD that identifies the precise patient population for whom the service would be reasonable and necessary.

4. Physician Recommendations

Comment: Several commenters stated that gender reassignment surgery should be covered as long as it was determined to be necessary, or medically necessary by a beneficiary's physician.

Response: Physician recommendation is one of many potential factors that the local MAC may consider when determining whether the documentation is sufficient to pay a claim.

5. WPATH Standards of Care

Comment: Several commenters suggested that CMS should recommend the WPATH Standards of Care (WPATH) as the controlling guideline for gender reassignment surgery. They asserted it could satisfy Medicare's reasonable and necessary criteria for determining coverage on a case-by-case basis.

Response: Based on our review of the evidence and conversations with the experts and patient advocates, we are aware some providers consult the WPATH Standards of Care, while others have created their own criteria and requirements for surgery, which they think best suit the needs of their patients. As such, and given that WPATH acknowledges the guidelines should be flexible, we are not in the position to endorse exclusive use of WPATH for coverage. The MACs, Medicare Advantage plans, and Medicare providers can use clinical guidelines they determine useful to inform their determination of whether an item or service is reasonable and necessary. When making this

determination, local MACs may take into account physician's recommendations, the individual's clinical characteristics, and available clinical evidence relevant to that individual.

6. Scope of the NCA Request

Comment: One commenter stated that CMS did not address the full scope of the NCA request.

Response: The formal request for a NCD is publicly available on our tracking sheet. (https://www.cms.gov/Medicare/Coverage/DeterminationProcess/downloads/id282.pdf) The letter did not explicitly seek a national coverage determination related to counseling or hormone therapies, but focused on surgical remedies. CMS is aware that beneficiaries with gender dysphoria use a variety of therapies.

Comment: Other commenters stated the scope of the proposed decision is unnecessarily broad because it discussed therapies other than surgery. They suggested this discussion could lead to the unintended consequence of restricting access to those services for transgender Medicare beneficiaries and other transgender individuals.

Response: As we noted in our proposed decision, our decision focused only on gender reassignment surgery. In the course of reviewing studies related to those surgeries, occasionally authors discussed other therapies that were mentioned in our summaries of the evidence. To the extent possible, we have modified our decision to eliminate the discussion of other therapies which were not fully evaluated in this NCA.

7. NCA Question

Comment: Some commenters expressed concern about the phrasing of the question in this NCA.

Response: The phrasing of the research question is consistent with most NCAs and we believe it is appropriate.

8. Evidence Summary and Analysis

Comment: Several commenters disagreed with our summary of the clinical evidence and analysis. A few commenters contended that the overall tone of the review was not neutral and seemed biased or flawed. One commenter noted that the Barrett publication was available on the Internet.

Response: We appreciate the comments that identified technical errors, and we made the necessary revisions to this document. However, we disagree with the contention that our evidence review was not neutral and seemed biased or flawed. We believe that the summary and analysis of the clinical evidence are objective. As with previous NCAs, our review of the evidence was rigorous and methodical. Additionally, we reviewed the Barrett publication, but it did not meet our inclusion criteria to be included in the Evidence section.

9. Evidence Review with Transgender Experts

Comment: Several commenters requested that CMS re-review the clinical evidence discussed in the proposed decision memorandum with outside experts in the field of transgender health and transition/gender reassignment-related surgeries. Several offered the expertise within their organization to assist in this effort.

Response: We appreciate these comments and the transgender health community's willingness to participate. For

this NCA we discussed gender reassignment surgery protocols with experts, primarily in coordinated care settings. Additionally, the public comment periods provide opportunities for expert stakeholder input. According to our process for all NCAs, we do not jointly review evidence with external stakeholders but have carefully reviewed the very detailed comments submitted by a number of outside experts in transgender health care.

10. Previous Non-Coverage NCD

Comment: One commenter noted that they thought research studies for gender reassignment surgery could not take place when the old NCD that prohibited coverage for gender reassignment surgery was in effect.

Response: CMS does not directly conduct clinical studies or pay for research grants. Some medical services are non-covered by Medicare; however, national non-coverage does not preclude research via a number of avenues and other funding entities such as the National Institutes of Health. In this instance, the previous NCD did not preclude interested parties from funding research for gender reassignment surgery that could have been generalizable to the Medicare population.

11. How the Medicare Population Differs from the General Population

Comment: One commenter questioned how the Medicare population differed from the general population, and why any differences would be important in our decision-making.

Response: The Medicare population is different from the general population in age (65 years and older) and/or disability as defined by the Social Security Administration. Due to the biology of aging, older adults may respond to health care treatments differently than younger adults. These differences can be due to, for example, multiple health conditions or co-morbidities, longer duration needed for healing, metabolic variances, and impact of reduced mobility. All of these factors can impact health outcomes. The disabled Medicare population, who are younger than age 65, is different from the general population and typical study populations due to the presence of the causes of disability such as psychiatric disorders, musculoskeletal health issues, and cardiovascular issues.

12. Medicare Evidence Development & Coverage Advisory Committee (MEDCAC)

Comment: One commenter suggested CMS should have convened a MEDCAC for this topic.

Response: We appreciate the comment. Given the limited evidence, we did not believe a MEDCAC was warranted according to our guidance document entitled "Factors CMS Considers in Referring Topics to the Medicare Evidence Development & Coverage Advisory Committee" (https://www.cms.gov/Regulations-and-Guidance/Guidance/FACA/MEDCAC.html).

13. §1557 of the Affordable Care Act (ACA)

Comment: Some commenters asserted that by not explicitly covering gender reassignment surgery at the national level, CMS was discriminating against transgender beneficiaries in conflict with Section 1557 of the Accountable Care Act (ACA).

Response: This decision does not affect the independent obligation of covered entities, including the Medicare program and MACs, to comply with Section 1557 in making individual coverage decisions. In accordance with Section 1557, MACs will apply neutral nondiscriminatory criteria when making case-by-case coverage determinations related

to gender reassignment surgery.

14. Medicaid

Comment: Some commenters observed that some states cover gender reassignment surgery through Medicaid or require commercial insurers operating in the state to cover the surgery.

Response: We appreciate the information about Medicaid and state requirements; however, State decisions are separate from Medicare coverage determinations. We make evidence-based determinations based on our statutory standards and processes.

15. Commercial Insurers

Comment: In several instances, commenters told us that the healthcare industry looks to CMS coverage determinations to guide commercial policy coverage.

Response: CMS makes evidence-based national coverage determinations based on our statutory standards and processes as defined in the Social Security Act, which may not be the same standards that are used in commercial insurance policies or by other health care programs. In addition as noted above, the Medicare population is different (e.g., Medicare covers 95% of adults 65 and older) than the typical population under commercial insurers. We do not issue coverage decisions to drive policy for other health organizations' coverage in one way or the other.

16. Healthcare for Transgender Individuals

Comment: Numerous professional associations wrote to CMS to explain their support for access to healthcare for transgender individuals.

Response: CMS recognizes that transgender beneficiaries have specific healthcare needs. Many health care treatments are available. We encourage all beneficiaries to utilize their Medicare benefits to help them achieve their best health.

17. Intended Use of the Decision Memorandum

Comment: Several commenters expressed concern that the analysis provided in the proposed and final decision memorandums may be used by individuals, entities, or payers for purposes unrelated to Medicare such as denial of coverage for transgender-related surgeries.

Response: The purpose of the decision memoranda is to memorialize CMS' analysis of the evidence, provide responses to the public comments received, and to make available the clinical evidence and other data used in making our decision consistent with our obligations under the § 1862 of the Act. The NCD process is open and transparent and our decisions are publicly available. Congress requires that we provide a clear statement of the basis for our determinations. The decision memoranda are an important part of the record of the NCD. Our focus is the Medicare population which, as noted above, is different than the general population in a number of ways. Other entities may conduct separate evidence reviews and analyses that are suited for their specific populations.

18. Cost Barriers to Care and Effects

Comment: A few commenters stated that without Medicare coverage, surgery is difficult to afford and there may be a risk of negative consequences for the individual. One commenter suggested that CMS should consider prior-authorization for these surgeries.

Response: CMS is aware that paying out-of-pocket for medical care is a strain on a beneficiary's finances. We are also aware of beneficiaries' hesitancy to undergo surgery prior to knowing whether or not Medicare will pay the claim. Gender reassignment surgeries are not the only procedures whereby payment is not determined until after the provider submits the claim to Medicare. Importantly, documentation for the claims need to be explicit about what procedures were performed and include the appropriate information in the documentation to justify using the code or codes for surgery. Of note, CMS has claims data that indicate Medicare has paid for gender reassignment surgeries in the recent past. Determining which services are designated for prior-authorization is outside of the scope of the NCA process.

19. Surgical Risks and Benefits

Comment: A number of commenters conveyed the benefits of gender reassignment surgery, while other commenters expressed concern that gender reassignment surgery was harmful.

Response: We appreciate these comments.

20. Expenditure of Federal Funds

Comment: Some commenters opposed spending Medicare program funds on gender reassignment surgery for a variety of reasons. For example, some commenters believe it is an "elective" procedure. Other commenters suggested that funds should first be spent on other priorities such as durable medical equipment (DME) or mobility items such as power chairs; increasing reimbursement to providers; or that spending should be limited to the proportion to the transgender adult population in the Medicare program.

Response: The purpose of this NCA is to determine whether or not CMS should issue a NCD to cover surgery for patients who have gender dysphoria. NCAs do not establish payment amounts or spending priorities and, therefore, these comments are outside the scope of this consideration.

VIII. CMS Analysis

National coverage determinations are determinations by the Secretary with respect to whether or not a particular item or service is covered nationally under § 1862(l)(6) of the Act. In general, in order to be covered by Medicare, an item or service must fall within one or more benefit categories contained within Part A or Part B and must not be otherwise excluded from coverage.

Moreover, in most circumstances, the item or service must be reasonable and necessary for the diagnosis or treatment of illness or injury or to improve the functioning of a malformed body member (§1862(a)(1)(A)). The Supreme Court has recognized that "[t]he Secretary's decision as to whether a particular medical service is 'reasonable and necessary' and the means by which she implements her decision, whether by promulgating a generally applicable rule or by allowing individual adjudication, are clearly discretionary decisions." Heckler v. Ringer, 466 U.S. 602, 617 (1984). See also, 78 Fed. Reg. 48,164, 48,165 (August 7, 2013)

When making national coverage determinations, we consider whether the evidence is relevant to the Medicare

beneficiary population. In considering the generalizability of the results of the body of evidence to the Medicare population, we carefully consider the demographic characteristics and comorbidities of study participants as well as the provider training and experience. This section provides an analysis of the evidence, which included the published medical literature and guidelines pertaining to gender dysphoria, that we considered during our review to answer the question:

Is there sufficient evidence to conclude that gender reassignment surgery improves health outcomes for Medicare beneficiaries with gender dysphoria?

CMS carefully considered all the studies listed in this decision memorandum to determine whether they answered the question posed in this NCA. While there appears to be many publications regarding gender reassignment surgery, it became clear that many of the publications did not meet our inclusion/exclusion criteria as explained earlier in the decision memorandum.

Thirty-three papers were eligible based on our inclusion/exclusion criteria for the subsequent review (Figure 1). All studies reviewed had potential methodological flaws which we describe below.

A. Quality of the Studies Reviewed

Overall, the quality and strength of evidence were low due to mostly observational study designs with no comparison groups, subjective endpoints, potential confounding (a situation where the association between the intervention and outcome is influenced by another factor such as a co-intervention), small sample sizes, lack of validated assessment tools, and considerable lost to follow-up (Appendices C and F). The impact of a specific therapeutic intervention can be difficult to determine when there are multiple serial treatments such as psychotherapy, hormone treatment and surgery. To reduce confounding, outcome assessment just prior to and after surgery such as in a longitudinal study would be helpful. The objective endpoints included psychiatric treatment, attempted suicide, requests for surgical reversal, morbidity (direct and indirect adverse events), and mortality (Appendix F). CMS agrees with the utility of these objective endpoints. Quality of life, while important, is more difficult to measure objectively (Appendix E).

Of the 33 studies reviewed, published results were conflicting – some were positive; others were negative. Collectively, the evidence is inconclusive for the Medicare population. The majority of studies were non-longitudinal, exploratory type studies (i.e., in a preliminary state of investigation or hypothesis generating), or did not include concurrent controls or testing prior to and after surgery. Several reported positive results but the potential issues noted above reduced strength and confidence. After careful assessment, we identified six studies that could provide useful information (Figure 1). Of these, the four best designed and conducted studies that assessed quality of life before and after surgery using validated (albeit non-specific) psychometric studies did not demonstrate clinically significant changes or differences in psychometric test results after GRS. (Heylens et al., 2014; Ruppin, Pfafflin, 2015; Smith et al., 2005; Udeze et al., 2008) (Appendix C Panel A and Appendix G.)

Two studies (three articles) assessed functional endpoints (request for surgical reassignment reversal and morbidity/mortality) (Dhejne et al., 2011; Dhejne et al., 2014 along with Landén et al., 1998) (Figure 1 and Appendix C, Panel A and Appendix G). Although the data are observational, they are robust because the Swedish national database is comprehensive (including all patients for which the government had paid for surgical services) and is notable for uniform criteria to qualify for treatment and financial coverage by the government. Dhejne et al. (2014) and Landén et al. (1998) reported cumulative rates of requests for surgical reassignment reversal or change in legal status of 3.3% while Dhejne et al. (2014) reported 2.2%. The authors indicated that the later updated calculation had the potential to be an underestimate because the most recent surgical cohorts were larger in size and had shorter periods of follow-up.

Dhejne et al., (2011) tracked all patients who had undergone reassignment surgery (mean age 35.1 years) over a 30 year interval and compared them to 6,480 matched controls. The study identified increased mortality and psychiatric hospitalization compared to the matched controls. The mortality was primarily due to completed suicides (19.1-fold greater than in control Swedes), but death due to neoplasm and cardiovascular disease was increased 2 to 2.5 times as well. We note, mortality from this patient population did not become apparent until after 10 years. The risk for psychiatric hospitalization was 2.8 times greater than in controls even after adjustment for prior psychiatric disease (18%). The risk for attempted suicide was greater in male-to-female patients regardless of the gender of the control. Further, we cannot exclude therapeutic interventions as a cause of the observed excess morbidity and mortality. The study, however, was not constructed to assess the impact of gender reassignment surgery *per se.*

We believe at minimum study designs should have a pre-test/post-test longitudinal design accompanied by characterization of all patients lost to follow-up over the entire treatment series as well as those patients who did not complete questionnaires, and the use of psychometric quality-of-life tools which are well validated with linkage to "hard" (objective) patient outcomes in this particular patient population (Trentacosti 2007, PRO 2009) (Appendices C and D).

Patient Care

Clinical evidentiary questions regarding the care of patients with gender dysphoria remain. Many of the publications focused on aspects of surgical technique as opposed to long-term patient outcomes. The specific type(s) of gender/sex reassignment surgery (e.g., genital, non-genital) that could improve health outcomes in adults remain(s) uncertain because most studies included patients who had undertaken one or more of a spectrum of surgical procedures or did not define the specific types of surgical procedures under study. Furthermore, surgical techniques have changed significantly over the last 60 years and may not reflect current practice (Bjerrome Ahlin et al., 2014; Doornaert, 2011; Green, 1998; Pauly, 1968; Selvaggi et al., 2007; Selvaggi, Bellringer, 2011; Tugnet et al., 2007; Doornaert, 2011).

The WPATH care recommendations present a general framework and guidance on the care of the transgender individual. The standards of care are often cited by entities that perform gender reassignment surgery. WPATH notes, "More studies are needed that focus on the outcomes of current assessment and treatment approaches for gender dysphoria." Appendix D in the WPATH Standards of Care briefly describes their evidence base and acknowledges the historical problems with evidentiary standards, the preponderance of retrospective data, and the confounding impact of multiple interventions, specifically distinguishing the impact of hormone therapy from surgical intervention.

Additionally, CMS met with several stakeholders and conducted several interviews with centers that focus on healthcare for transgender individuals in the U.S. Primary care rather than gender reassignment surgery was often the main focus. Few of the U.S.-based reassignment surgeons we could identify work as part of an integrated practice, and few provide the most complex procedures.

Psychometric Tools

CMS reviewed psychometric endpoints because gender dysphoria (inclusive of prior nomenclature) describes an incongruence between the gender assigned at birth and the gender(s) with which the person identifies.

The psychometric tools used to assess outcomes have limitations. Most instruments that were specific for gender dysphoria were designed by the investigators themselves or by other investigators within the field using limited populations and lacked well documented test characterization. (Appendices E and F) By contrast, test instruments with validation in large populations were non-specific and lacked validation in the gender dysphoric patient populations. (Appendices E and F). In addition, the presentation of psychometric results must be accompanied by

enough information about the test itself to permit adequate interpretation of test results. The relevant diagnostic cut-points for scores and changes in scores that are clinically significant should also be scientifically delineated for interpretation.

Generalizability

It is difficult to generalize these study results to the current Medicare population. Many of the studies are old given they were conducted more than 10 years ago. Most of these studies were conducted outside of the U.S. in very different medical systems for treatment and follow-up. Many of the programs were single-site centers without replication elsewhere. The study populations were young and without significant physical or psychiatric co-morbidity (Appendix D). As noted earlier, psychiatric co-morbidity may portend poor outcomes (Asscheman et al., 2011; Landén et al., 1998).

Knowledge Gaps

This patient population faces complex and unique challenges. The medical science in this area is evolving. This review has identified gaps in the evidentiary base as well as recommendations for good study designs. The Institute of Medicine, the National Institutes of Health, and others also identified many of the gaps in the data. (Boehmer, 2002; HHS-HP, 2011; IOM, 2011; Kreukels-ENIGI, 2012; Lancet, 2011; Murad et al., 2010; NIH-LGBT, 2013) The current or completed studies listed in ClinicalTrials.gov are not structured to assess these gaps. These gaps have been delineated as they represent areas in which patient care can be optimized and are opportunities for much needed research.

B. Health Disparities

Four studies included information on racial or ethnic background. The participants in the three U.S. based studies were predominantly Caucasian (Beatrice, 1985; Meyer, Reter, 1979; Newfield et al., 2006). All of the participants in the single Asian study were Chinese (Tsoi, 1993). Additional research is needed in this area.

C. Summary

Based on an extensive assessment of the clinical evidence as described above, there is not enough high quality evidence to determine whether gender reassignment surgery improves health outcomes for Medicare beneficiaries with gender dysphoria and whether patients most likely to benefit from these types of surgical intervention can be identified prospectively.

The knowledge on gender reassignment surgery for individuals with gender dysphoria is evolving. Much of the available research has been conducted in highly vetted patients at select care programs integrating psychotherapy, endocrinology, and various surgical disciplines. Additional research of contemporary practice is needed. To assess long-term quality of life and other psychometric outcomes, it will be necessary to develop and validate standardized psychometric tools in patients with gender dysphoria. Further, patient preference is an important aspect of any treatment. As study designs are completed, it is important to include patient-centered outcomes.

Because CMS is mindful of the unique and complex needs of this patient population and because CMS seeks sound data to guide proper care of the Medicare subset of this patient population, CMS strongly encourages robust clinical studies with adequate patient protections that will fill the evidence gaps delineated in this decision memorandum. As the Institute of Medicine (IOM, 2011) importantly noted: "Best practices for research on the health status of LGBT populations include scientific rigor and respectful involvement of individuals who represent the target population.

Scientific rigor includes incorporating and monitoring culturally competent study designs, such as the use of appropriate measures to identify participants and implementation processes adapted to the unique characteristics of the target population. Respectful involvement refers to the involvement of LGBT individuals and those who represent the larger LGBT community in the research process, from design through data collection to dissemination."

IX. Decision

Currently, the local Medicare Administrative Contractors (MACs) determine coverage of gender reassignment surgery on a case-by-case basis. We have a received a complete, formal request to make a national coverage determination on surgical remedies for gender identity disorder (GID), now known as gender dysphoria. The Centers for Medicare & Medicaid Services (CMS) is not issuing a National Coverage Determination (NCD) at this time on gender reassignment surgery for Medicare beneficiaries with gender dysphoria because the clinical evidence is inconclusive for the Medicare population.

In the absence of a NCD, coverage determinations for gender reassignment surgery, under section 1862(a)(1)(A) of the Social Security Act (the Act) and any other relevant statutory requirements, will continue to be made by the local MACs on a case-by-case basis. To clarify further, the result of this decision is not national non-coverage rather it is that no national policy will be put in place for the Medicare program. In the absence of a national policy, MACs will make the determination on whether or not to cover gender reassignment surgery based on whether gender reassignment surgery is reasonable and necessary for the individual beneficiary after considering the individual's specific circumstances. For Medicare beneficiaries enrolled in Medicare Advantage (MA) plans, the initial determination of whether or not surgery would be reasonable and necessary will be made by the MA plans.

Consistent with the request CMS received, the focus of this National Coverage Analysis (NCA) was gender reassignment surgery. Specific types of surgeries were not individually assessed. We did not analyze the clinical evidence for counseling or hormone therapy treatments for gender dysphoria. As requested by several public commenters, we have modified our final decision memorandum to remove language that was beyond the scope of the specific request. We are not making a national coverage determination relating to counseling, hormone therapy treatments, or any other potential treatment for gender dysphoria.

While we are not issuing a NCD, CMS encourages robust clinical studies that will fill the evidence gaps and help inform which patients are most likely to achieve improved health outcomes with gender reassignment surgery, which types of surgery are most appropriate, and what types of physician criteria and care setting(s) are needed to ensure that patients achieve improved health outcomes.

A. Appendix A

Diagnostic & Statistical Manual of Mental Disorders (DSM) Criteria for Disorders of Gender Identity since 1980

DSM Version	Condition Name	Criteria	Criteria	Comments
DSM III 1980 *Chapter: Psychosexual Disorders*	**Trans-sexualism** *302.5x [Gender Identity Disorder of*	Required A (cross-gender identification) and B (aversion to one's natal	Sense of discomfort and inappropriateness about one's anatomic sex. Wish to be rid of one's own genitals and to live as a member of the other sex. The	Further characterization by sexual orientation Distinguished from Atypical Gender

	Child-hood (302.6)]	gender) criteria Dx excluded by physical intersex condition Dx excluded by another mental disorder, e.g., schizophrenia	disturbance has been continuous (not limited to periods of stress) for at least 2 years.	Identity Disorder 302.85
DSM III-Revised 1987 *TS classified as an Axis II dx (personality disorders and mental retardation) in a different chapter. GID included under Disorders Usually First Evident in Infancy, Childhood, Adolescence*	**Trans-sexualism** *(TS) (302.50) [GID of C]*	Required A and B criteria	Persistent discomfort and sense of inappropriateness about one's assigned sex. Persistent preoccupation for at least 2 years with getting rid of one's 1^{o} and 2^{o} sex characteristics and acquiring the sex characteristics of the other sex. Has reached puberty	Further characterization by sexual orientation Distinguished from Gender Identity Disorder of Adolescence or Adulthood, Non-trans-sexual Type • e.g., cross-dressing not for the purposes of sexual excitement Gender Identity Disorder Not Otherwise Specified 302.6 • e.g., intersex conditions Gender Identity Disorder Not Otherwise Specified 302.85 • e.g., persistent preoccupation with castration or penectomy w/o desire to acquire the sex traits of the other sex
	GID of adulthood, non-trans-sexual type, added			
DSM IV 1994 *Chapter: Sexual & Gender Identity Disorders*	**Gender Identity Disorder** in Adolescents and Adults (302.85) (Separate criteria & code for children, but	Required A and B criteria Dx excluded by physical intersex condition	Cross-gender identification • e.g., Stated desire to be another sex • e.g., Desire to live or be treated as a member of the other sex • e.g., conviction that he/she has the typical feelings and reactions of the other sex	Further characterization by sexual orientation Distinguished from Gender Identity Disorder Not Otherwise Specified 302.6 • e.g., intersex

	same name)		• e.g., frequent passing as the other sex Persistent discomfort with his/her sex or sense of inappropriateness in the gender role of that sex. • e.g., belief the he/she was born the wrong sex • e.g., preoccupation with getting rid of 1^{o} and 2^{o} sex characteristics &/or acquiring sexual traits of the other sex • Clinically significant distress or impairment in social, occupational, or other important areas of functioning	conditions • e.g., stress related cross-dressing • e.g., persistent preoccupation with castration or penectomy w/o desire to acquire the sex traits of the other sex
DSM IV-Revised 2000 *Chapter: Sexual & Gender Identity Disorders*	**Gender Identity Disorder** (Term trans-sexual-ism eliminated)	Required A & B criteria Dx excluded by physical intersex condition	Cross-gender identification • e.g., stated desire to be the other sex • e.g., desire to live or be treated as the other sex • e.g., conviction that he/she has the typical feelings & reactions of the other sex • e.g., frequent passing as the other sex Persistent discomfort with his or her sex OR sense of inappropriateness in the gender role of that sex • e.g., belief the he/she was born the wrong sex • e.g., preoccupation with getting rid of 1^{o} and 2^{o} sex characteristics &/or acquiring sexual traits of the other sex Clinically significant distress or impairment in social, occupational, or other important areas of functioning	Outcome may depend on time of onset Further characterization by sexual orientation Distinguished from Gender Identity Disorder Not Otherwise Specified 302.6 • e.g., intersex conditions • e.g., stress related cross-dressing • e.g., persistent preoccupation with castration or penectomy w/o desire to acquire the sex traits of the other sex
DSM V 2013 *Separate Chapter from Sexual Dysfunctions & Paraphilic Disorders*	**Gender Dysphoria** *(302.85)*	Gender nonconformity itself not considered to be a mental disorder The dysphoria associated with the gender incongruence is Eliminates A & B criteria	• Marked discordance between natal 1^{o} and 2^{o} sex characteristics* and experienced/expressed gender • Conviction that he/she has the typical feelings & reactions of the other sex (or some alternative gender) • Marked desire to be the other sex (or some alternative gender) • Marked desire to desire be treated as the other sex (or some alternative gender)	Includes diagnosis for post transition state to permit continued treatment access Includes disorders of sexual development such as congenital hyperplasia and androgen insensitivity

		Considers gender incongruence to be a spectrum Considers intersex/ "disorders of sex development" to be a subsidiary and not exclusionary to dx of GD	• Marked desire to be rid of syndromes natal 1^{O} and 2^{O} sex characteristics** • Marked desire to acquire 1^{O} and 2^{O} sex characteristics of the other sex (or some alternative gender) Clinically significant distress or impairment in social, occupational, or other important areas of functioning * or in young adolescents, the anticipated 2^{O} sex characteristics ** or in young adolescents, prevent the development of the anticipated 2^{O} sex characteristics ≥ 6 month marked discordance between natal gender & experienced/expressed gender as demonstrated by ≥ 6 criteria: • Strong desire to be of the other gender or an insistence that one is of another gender. • Strong preference for cross-gender roles in make-believe play. • Strong preference for the toys, games, or activities of the other gender. • Strong preference for playmates of the other gender. • In boys, strong preference for cross-dressing; in girls, strong preference for wearing masculine clothing • In boys, rejection of masculine toys, games, activities, avoidance of rough and tumble play; in girls, rejection of feminine toys, games, and activities.	
	Unspecified Gender Dysphoria (302.6) (F64.9)		This category applies to presentations in which sx c/w gender dysphoria that cause clinically significant distress or impairment, but do not meet the full criteria for gender dysphoria & the reason for not meeting the criteria is not provided.	
	Specified Gender Dysphoria 302.6 (F64.8)		If the reason that the presentation does not meet the full criteria is provided then this dx should be used	

C/W=consistent with Dx=diagnosis GD=gender dysphoria Sx=symptoms TS=transsexual 1^{O}=primary 2^{O}=secondary

B. Appendix B

1. General Methodological Principles of Study Design

When making national coverage determinations, CMS evaluates relevant clinical evidence to determine whether or not the evidence is of sufficient quality to support a finding that an item or service is reasonable and necessary. The overall objective for the critical appraisal of the evidence is to determine to what degree we are confident that: 1) the specific assessment questions can be answered conclusively; and 2) the intervention will improve health outcomes for patients.

We divide the assessment of clinical evidence into three stages: 1) the quality of the individual studies; 2) the generalizability of findings from individual studies to the Medicare population; and 3) overarching conclusions that can be drawn from the body of the evidence on the direction and magnitude of the intervention's potential risks and benefits.

The methodological principles described below represent a broad discussion of the issues we consider when reviewing clinical evidence. However, it should be noted that each coverage determination has its unique methodological aspects.

Assessing Individual Studies

Methodologists have developed criteria to determine weaknesses and strengths of clinical research. Strength of evidence generally refers to: 1) the scientific validity underlying study findings regarding causal relationships between health care interventions and health outcomes; and 2) the reduction of bias. In general, some of the methodological attributes associated with stronger evidence include those listed below:

- Use of randomization (allocation of patients to either intervention or control group) in order to minimize bias.
- Use of contemporaneous control groups (rather than historical controls) in order to ensure comparability between the intervention and control groups.
- Prospective (rather than retrospective) studies to ensure a more thorough and systematical assessment of factors related to outcomes.
- Larger sample sizes in studies to demonstrate both statistically significant as well as clinically significant outcomes that can be extrapolated to the Medicare population. Sample size should be large enough to make chance an unlikely explanation for what was found.
- Masking (blinding) to ensure patients and investigators do not know to which group patients were assigned (intervention or control). This is important especially in subjective outcomes, such as pain or quality of life, where enthusiasm and psychological factors may lead to an improved perceived outcome by either the patient or assessor.

Regardless of whether the design of a study is a randomized controlled trial, a non-randomized controlled trial, a cohort study or a case-control study, the primary criterion for methodological strength or quality is the extent to which differences between intervention and control groups can be attributed to the intervention studied. This is known as internal validity. Various types of bias can undermine internal validity. These include:

- Different characteristics between patients participating and those theoretically eligible for study but not participating (selection bias).
- Co-interventions or provision of care apart from the intervention under evaluation (performance bias).
- Differential assessment of outcome (detection bias).

- Occurrence and reporting of patients who do not complete the study (attrition bias).

In principle, rankings of research design have been based on the ability of each study design category to minimize these biases. A randomized controlled trial minimizes systematic bias (in theory) by selecting a sample of participants from a particular population and allocating them randomly to the intervention and control groups. Thus, in general, randomized controlled studies have been typically assigned the greatest strength, followed by non-randomized clinical trials and controlled observational studies. The design, conduct and analysis of trials are important factors as well. For example, a well-designed and conducted observational study with a large sample size may provide stronger evidence than a poorly designed and conducted randomized controlled trial with a small sample size. The following is a representative list of study designs (some of which have alternative names) ranked from most to least methodologically rigorous in their potential ability to minimize systematic bias:

Randomized controlled trials
Non-randomized controlled trials
Prospective cohort studies
Retrospective case control studies
Cross-sectional studies
Surveillance studies (e.g., using registries or surveys)
Consecutive case series
Single case reports

When there are merely associations but not causal relationships between a study's variables and outcomes, it is important not to draw causal inferences. Confounding refers to independent variables that systematically vary with the causal variable. This distorts measurement of the outcome of interest because its effect size is mixed with the effects of other extraneous factors. For observational, and in some cases randomized controlled trials, the method in which confounding factors are handled (either through stratification or appropriate statistical modeling) are of particular concern. For example, in order to interpret and generalize conclusions to our population of Medicare patients, it may be necessary for studies to match or stratify their intervention and control groups by patient age or co-morbidities.

Methodological strength is, therefore, a multidimensional concept that relates to the design, implementation and analysis of a clinical study. In addition, thorough documentation of the conduct of the research, particularly study selection criteria, rate of attrition and process for data collection, is essential for CMS to adequately assess and consider the evidence.

Generalizability of Clinical Evidence to the Medicare Population

The applicability of the results of a study to other populations, settings, treatment regimens and outcomes assessed is known as external validity. Even well-designed and well-conducted trials may not supply the evidence needed if the results of a study are not applicable to the Medicare population. Evidence that provides accurate information about a population or setting not well represented in the Medicare program would be considered but would suffer from limited generalizability.

The extent to which the results of a trial are applicable to other circumstances is often a matter of judgment that depends on specific study characteristics, primarily the patient population studied (age, sex, severity of disease and presence of co-morbidities) and the care setting (primary to tertiary level of care, as well as the experience and specialization of the care provider). Additional relevant variables are treatment regimens (dosage, timing and route of administration), co-interventions or concomitant therapies, and type of outcome and length of follow-up.

The level of care and the experience of the providers in the study are other crucial elements in assessing a study's external validity. Trial participants in an academic medical center may receive more or different attention than is typically available in non-tertiary settings. For example, an investigator's lengthy and detailed explanations of the potential benefits of the intervention and/or the use of new equipment provided to the academic center by the study sponsor may raise doubts about the applicability of study findings to community practice.

Given the evidence available in the research literature, some degree of generalization about an intervention's potential benefits and harms is invariably required in making coverage determinations for the Medicare population. Conditions that assist us in making reasonable generalizations are biologic plausibility, similarities between the populations studied and Medicare patients (age, sex, ethnicity and clinical presentation) and similarities of the intervention studied to those that would be routinely available in community practice.

A study's selected outcomes are an important consideration in generalizing available clinical evidence to Medicare coverage determinations. One of the goals of our determination process is to assess health outcomes. These outcomes include resultant risks and benefits such as increased or decreased morbidity and mortality. In order to make this determination, it is often necessary to evaluate whether the strength of the evidence is adequate to draw conclusions about the direction and magnitude of each individual outcome relevant to the intervention under study. In addition, it is important that an intervention's benefits are clinically significant and durable, rather than marginal or short-lived. Generally, an intervention is not reasonable and necessary if its risks outweigh its benefits.

If key health outcomes have not been studied or the direction of clinical effect is inconclusive, we may also evaluate the strength and adequacy of indirect evidence linking intermediate or surrogate outcomes to our outcomes of interest.

Assessing the Relative Magnitude of Risks and Benefits

Generally, an intervention is not reasonable and necessary if its risks outweigh its benefits. Health outcomes are one of several considerations in determining whether an item or service is reasonable and necessary. CMS places greater emphasis on health outcomes actually experienced by patients, such as quality of life, functional status, duration of disability, morbidity and mortality, and less emphasis on outcomes that patients do not directly experience, such as intermediate outcomes, surrogate outcomes, and laboratory or radiographic responses. The direction, magnitude, and consistency of the risks and benefits across studies are also important considerations. Based on the analysis of the strength of the evidence, CMS assesses the relative magnitude of an intervention or technology's benefits and risk of harm to Medicare beneficiaries.

Appendix C

Patient Population: Enrolled & Treated with Sex Reassignment Surgery Loss of Patients & Missing Data

Panel A (Controlled Studies)

Author	Study Type	Recruitment Pool	Enrolled	% GRS	Completion
Dhejne 2011	Longitudinal Controlled	804 w GD	324	324 (100%)	-
Dhejne 2014 Landén	Longitudinal for test variable Controlled	767 applied for SRS 25 applications denied. 61 not granted full legal status	681	681 (100%)	NA: Clinical data extracted retrospectively in earlier paper

		15 formal applications for surgical reversal			
Heylens	Longitudinal Controlled	90 applicants for SRS 33 excluded 11 later excluded had not yet received SRS by study close.	57 (→46)	46 (80.7%) Only those w SRS evaluated	Psycho-social survey missing data for 3 at baseline & 4 after SRS. SCL90 not completed by 1 at baseline, 10 after hormone tx, & 4 after SRS →missing data for another 1.1% to 11.1%.
Kockott	Longitudinal Controlled	80 applicants for SRS 21 excluded	59	32 (54.2%) went to surgery	1 preoperative patient was later excluded b/c lived completely in aspired gender w/o SRS. Questions on financial sufficiency not answered by 1 surgical pt. Questions on sexual satisfaction & gender contentment not answered by 1 & 2 patients awaiting surgery respectively.
Mate-Kole 1990	Longitudinal Controlled	40 sequential patients of accepted patients. The number in the available patient pool was not specified.	40	20 (50%) went to surgery	-
Meyer	Longitudinal Controlled	Recruitment pool: 100 50 were excluded.	50	15 (30%) had undergone surgery 14 (28%) underwent surgery later	The assessments of all were complete
Rakic	Longitudinal Controlled	92 were evaluated 54 were excluded from surgery 2 post SRS were lost to follow-up 2 post SRS were excluded for being in the peri-operative period	32	32 (100%)	Questionnaire completed by all.
Ruppin	Longitudinal Controlled	The number in the available patient pool was not specified. 140 received recruitment letters. 69 were excluded	71	69 (97.2%)	The SCL-90, BSRI, FPI-R, & IPP tests were not completed by 9, 34, 13, &16 respectively. Questions about romantic relationships, sexual relationships, friendships, & family relationships were not answered by 1, 3, 2, & 23 respectively.

					Questions regarding gender security & regret & were not answered by 1& 2 respectively.
Smith	Longitudinal Controlled	The number in the available adult patient pool was not specified. 325 adult & adolescent applicants for SRS were recruited. 103 were excluded from additional tx	162	162 (100%)	36 to 61 (22.2%-37.6% of those adults w pre-SRS data) did not complete various post-SRS tests.
Udeze Megeri	Longitudinal Controlled	International patient w GD 546 & post SRS 318. 40 M to F subjects were prospectively selected.	40	40 (100%)	-
Ainsworth	Internet/convention Survey Cross-sectional Controlled	Number of incomplete questionnaires not reported	247	72 (29.1%) 75 (30.6%) facial 147 (59.5%) had received neither facial nor reassignment surgery	-
Beatrice	Cross-sectional Controlled	14 excluded for demographic matching reasons	40	10 (25%)	The assessments were completed by all
Haraldsen	Cross-sectional Controlled	Recruitment pool: 99	86	59 (68.6%)	-
Kraemer	Cross-sectional Controlled	The number in the available patient pool was not specified.	45	22 (48.9%)	-
Kuhn	Cross-sectional Controlled	The number in the available patient pool was not specified.	75	55 (73.3%)	-
Mate-Kole 1988	Cross-sectional Controlled	150 in 3 cohorts. Matched on select traits. The number in the available patient pool was not specified.	150	50 (66.7%)	-
Wolfradt	Cross-sectional Controlled	The number in the available patient pool was not specified.	90	30 (33.3%)	-

Panel B (Surgical Series: No Concurrent Controls)

Author	Study Type	Recruitment Pool	Enrolled	% GRS	Completion
Blanchard	Cross-sectional	294 clinic patients w GD	79	79(100%)	-

et al.	Control: Normative test data	had completed study questionnaire 116 authorized for GRS. 103 completed GRS & 1 yr post-operative. 24 excluded			
Weyers et al.	Cross-sectional Control: Normative test data	>300 M to F patients had undergone GRS 70 eligible patients recruited 20 excluded	50	50 (100%)	SF-26 not completed by 1
Wierckx et al.	Cross-sectional except for recall questions Control: Normative test data	79 F to M patients had undergone GRS & were recruited. 3 additional non-clinic patients were recruited by other patients. 32 excluded initially; 1 later.	49	49 (100%)	SF-36 test not completed by 2. Questions regarding sexual re-lationship, sex function, & surgical satisfaction were answered by as few as 27, 28, 32 respectively.
Eldh et al.	Cross-sectional except for 1 variable Control: Self for 1 variable-employ-ment	136 were identified. 46 excluded	90	90 (100%)	Questions regarding gender iden-tity, sex life, acceptance, & overall satisfaction were not answered by 13, 14, 14 & 16 respectively. Employment data missing for 11.
Hess et al.	Cross-sectional No control	254 consecutive eligible patients post GRS identified & sent surveys. 135 excluded.	119	119 (100%)	Questions regarding the esthetics, functional, and social outcomes of GRS were not answered by 16 to 28 patients.
Lawrence	Cross-sectional No control	727 eligible patients were recruited. 495 were excluded	232	232 (100%)	-
Salvador et al.	Cross-sectional No control	243 had enrolled in the clinic 82 completed GRS 69 eligible patients were identified. 17 excluded.	52	52 (100%)	-
Tsoi	Cross-sectional No control	The number in the available patient pool was not specified.	81	81 (100%)	-

Panel C (Mixed Treatment Series: No Direct Control Groups)

Author	Study Type	Recruitment Pool	Enrolled	% GRS	Completion
Gómez-Gil et al. 2012	Cross-sectional No direct control: Analysis of variance	200 consecutive patients were recruited.	187	79 (42.2%)	See prior box.

		13 declined participation or were excluded for incomplete questionnaires.			
Hepp et al.	Cross-sectional No direct control: Analysis of variance	The number in the available patient pool was not specified.	31	7 (22.6%)	HADS test not completed by 1
Motmans et al.	Cross-sectional No direct control: Analysis of variance & regression	255 with GD were identified. 77 were excluded.	148 (→140)	Not clearly stated. At least 103 underwent some form of GRS.	8 later excluded for incomplete SF-36 tests. 37 w recent GRS or hormone initiation were excluded from analysis of SF-36 results→103.
Newfield et al.	Internet survey Cross-sectional No direct control: Analysis of variance	Number of incomplete questionnaires not reported 446 respondents; 384 U.S respondents 62 non-U.S. respondents excluded from SF-36 test results 8 U.S. respondents excluded	376 (U.S.)	139 to 150 (37.0-39.9%) in U.S.	-
Gomez-Gil et al. 2014	Cross-sectional No direct control: Analysis w regression	The number in the available patient pool was not specified. 277 were recruited. 25 excluded	252(→193)	80 (41.4%) non-genital surgery	59 were excluded for incomplete questionnaires. See prior box.
Asscherman	Longitudinal No analysis by tx status	The number in the available patient pool was not specified.	1331	1177 (88.4%)	-
Johansson et al.	Cross-sectional except for 1 variable No analysis by tx status except for 1 question	60 eligible patients 18 excluded.	42	32 (76.2% of enrolled & 53.3% of eligible) (genital surgery)	-
Leinung et al.	Cross-sectional No analysis by tx status	242 total clinic patients	242	91 (37.6%)	Employment status data missing for 81 of all patients

*Data obtained via a survey on a website and distributed at a conference
B/C=because
BSRI=Bem Sex Role Inventory
F=Female
FP-R=Freiberg Personality Inventory
GD=Gender dysphoria
GID=Gender identity disorder
HADS=Hospital Anxiety & Depression Scale

IPP=Inventory of Interpersonal Problems
M=Male
NA=Not applicable
SCL-90=Symptom Checklist-90
SF-36=Short Form 36
GRS=Sex reassignment surgery
Tx=Treatment
W/o=without

Appendix D

Demographic Features of Study Populations

Panel A (Controlled Studies)

Author	Age (years; mean, S.D., range)	Gender	Race
Ainsworth	Only reassignment surgery:50 (no S.D.) Only facial surgery: 51 (no S.D.) Both types of surgery: 49 (no S.D.) Neither surgery: 46 (no S.D.)	247 M to F	-
Beatrice	Pre-SRS M to F: 32.5 (27-42), Post-SRS: 35.1 (30-43)	20 M to F plus 20 M controls	100% Caucasian
Dehjne 2011	Post-SRS: all 35.1±9.7 (20-69), F to M 33.3+8.7 (20–62), M to F 36.3+ 10.1(21–69)	133 (41.0%) F to M, 191 (59.0%) M to F; ratio 1:1.4	-
Dhejne 2014 Landén	F to M SRS cohort: median age 27 M to F SRS cohort: median age 32 F to M applicants for reversal: median age 22 M to F applicants for reversal: median age 35	767 applicants for legal/surgical reassignment 289 (37.7%) F to M, 478 (62.3%) M to F; ratio 1:1.6 681 post SRS & legal change 252 (37.0%) F to M, 429 (63.0%) M to F; ratio 1:1.7 15 applicants for reversal 5 (33.3%) F to M, 10 (66.7%) M to F; ratio 1:2	-
Haraldsen	Pre-SRS & Post-SRS: F to M 34±9.5, F to M 33.3±10.0 Post-SRS cohort reportedly older. No direct data provided.	Pre & Post SRS 35 (40.7%) F to M, 51 (59.3%) M to F; ratio 1:1.5	-
Heylens	-	11 (19.3% of 57) F to M, 46 (80.7%); ratio 1:4.2 (80.7% underwent surgery)	-
Kockott	Pre-SRS (continued wish for surgery): 31.7±10.2 Post-SRS: 35.5±13.1	Pre-SRS (continued wish for surgery) 3 (25%) F to M, 9 (75%) M to F; ratio 1:3 Post SRS: 14 (43.8%) F to M, 18 (56.2%) M to F; ratio 1:1.3	-
Kraemer	Pre-SRS: 33.0±11.3, Post-SRS: 38.2±9.0	Pre-SRS 7 F to M (30.4%), 16 M to F (69.6%); ratio 1:2.3 Post-SRS 8 F to M (36.4%), 14 M to F	-

		(63.6%); ratio 1:1.8	
Kuhn	All post SRS: median (range): 51 (39-62) (long-term follow-up)	3 (5.4%) F to M, 52 (94.5%) M to F; ratio 1:17.3.	-
Mate-Kole 1988	Initial evaluation: 34, Pre-SRS: 35, Post-SRS: 37	150 M to F	-
Mate-Kole 1990	Early & Usual wait SRS: 32.5 years (21-53)	40 M to F	-
Meyer	Pre-SRS: 26.7 Delayed, but completed SRS: 30.9 Post-SRS: 30.1	Pre-SRS: 5 (23.8%) F to M, 16 (76.2%) M to F; ratio 1:3.2 Delayed, but completed SRS: 1 (7.1%) F to M, 13 (92.9%) M to F; ratio 1:13 Post-SRS: 4 (26.7%) F to M, 11 (73.3%) M to F; ratio 1:2.8	86% Caucasian
Rakic	All: 26.8±6.9 (median 25.5, range 19-47), F to M: 27.8±5.2 (median 27, range 23-37), M to F: 26.4±7.8 (median 24, range 19-47).	10 (31.2%) F to M, 22 (68.8%) M to F; ratio 1:2.2	-
Ruppin	All: 47.0±10.42 (but 2 w/o SRS) (13.8±2.8 yrs post legal name change) (long-term follow-up) F to M: 41.2±5.78, M to F 52.9±10.82	36 (50.7%) F to M, 35 (49.3%) M to F; ratio 1:0.97	-
Smith	Time of surgical request for post-SRS: 30.9 (range 17.7-68.1) Time of follow-up for post-SRS: 35.2 (range 21.3-71.9)	Pre-SRS: 162: 58 (35.8%) F to M, 104 [64.2%] M to F; ratio 1:1.8 Post-SRS: 126: 49 (38.9%) F to M, 77 (61.1%) M to F; ratio 1:1.6	-
Udeze Megeri	M to F: 47.33±13.26 (range 25-80).	40 M to F	-
Wolfradt	Patients & controls: 43 (range 29-67).	30 M to F plus 30 F controls plus 30 M controls.	-

*Data obtained via a survey on a website and distributed at a conference SD=Standard deviation

Panel B (Surgical Series: No Concurrent Controls)

Author	**Age (years; mean, S.D., range)**	**Gender**	**Caucasian**
Blanchard et al.	F to M: 32.6, M to F w M partner preference: 33.2, F to M w F partner preference: 47.7 years	Post-GRS: 47 (45.6%) F to M, 56 (54.4%) M to F; ratio 1:1.19. In study: 38 (48.1%) F to M, 32 (40.5%) M to F w M partner preference, 9 (11.4%) M to F w F partner preference; ratio 1:0.8: 0.2	-
Weyers et al.	Post-GRS M to F: 43.1 ±10.4 (long-term follow-up)	50 M to F	-
Wierckx et al.	Time of GRS: 30±8.2 years (range 16 to 49) Time of follow-up: 37.1 ±8.2.4 years (range 22 to 54)	49 M to F	-
Eldh et al.	-	50 (55.6%) F to M, 40 (44.4%) M to F; ratio 1:0.8 There is 1 inconsistency in the text	-

		suggesting that these should be reversed.	
Hess et al.	-	119 M to F	-
Lawrence	Time of GRS: 44±9 (range 18-70)	232 M to F	-
Salvador et al.	Time of follow-up for post-GRS: 36.28±8.94 (range 18-58) (Duration of follow-up: 3.8±1.7 [2-7])	52 M to F	-
Tsoi	Time of initial visit: All: 24.0±4.5, F to M: 25.4±4.4 (14-36), M to F: 22.9±4.6 (14-36). Time of GRS: All: 25.9±4.14, F to M: 27.4±4.0 (20-36), M to F: 24.7+4.3 (20-36).	36 (44.4%) F to M, 45 (55.6%) M to F; ratio 1:1.25	0% 100% Asian

Panel C (Mixed Treatment Series: No Direct Control Groups)

Author	Age (years; mean, S.D., range)	Gender	Caucasian
Gómez-Gil et al. 2012	W & W/O GRS: All: 29.87±9.15 (range 15-61), W/O hormone tx: 25.9±7.5, W current hormone tx: 33.6±9.1. (At hormone initiation: 24.6±8.1).	W/O hormone tx: 38 (56.7%) F to M, 29 (43.3%) M to F; ratio 1:0.8. W hormone tx: 36 (30.0%) F to M, 84 (70.0%) M to F; ratio 1:2.3. Post-GRS: 29 (36.7%) F to M, 50 (63.3%) M to F; ratio 1:1.7.	-
Hepp et al.	W & W/O GRS: 32.2±10.3	W & W/O GRS: 11 (35.5%) F to M; 20 (64.5%) M to F; ratio 1:1.8.	-
Motmans et al.	W & W/O GRS: All (n=140) : 39.9±10.2, F to M: 37.0±8.5, M to F: 42.3±10.4	W & W/O GRS: N=140 63(45.0%) F to M, 77 (55.0%) M to F; ratio 1:1.2 N=103 49 (47.6%) F to M; 54 (52.4%) M toF; ratio 1:1.1	-
Newfield et al.	W & W/O GRS: U.S.+ non-U.S. : 32.8±11.2, U.S. 32.6±10.8	W & W/O GRS: U.S.+ non-U.S.: F to M, 438, U.S.: F to M: 376	89% of 336 respondents Caucasian
Gomez-Gil, et al. 2014	W & W/O Non-genital GRS: 31.2±9.9 (range 16-67).	W & W/O Non-genital GRS: 74 (38.3%) F to M, 119 (61.7%) M to F; ratio1:1.6.	-
Asscherman	Time of hormone tx: F to M: 26.1±7.6 (16–56), M to F: 31.4±11.4 (16–76)	Met hormone tx requirements: 365 (27.4%) F to M, 966 (72.6%) M to F; ratio 1:2.6. Post-GRS: 343 (29.1%) F to M, 834 (70.9%) M to F; ratio 1:2.4.	-
Johanssen	Time of initial evaluation: F toM: 27.8 (18-46), M to F 37.3 (21-60). Time of GRS: F to M: 31.4 (22-49), M to F 38.2 (22-57). Time of follow-up for post-GRS: F to M: 38.9 (28-53), M to F 46.0 (25-69) (Long-term follow-up)	Approved for GRS: 21 (35%) F to M, 39 (65%) M to F; ratio 1:1.9) Post GRS: 14 (43.8%) F to M; 18 (56.2%) M to F; ratio 1:1.3)	-
Leinung et al.	Time of hormone initiation : F to M: 27.5, M to F 35.5	W & W/O GRS: 50 (20.7%) F to M, 192 M to F (79.3%); ratio 1:3.8. Post-GRS: 32 F to M (35.2%); 59 (64.8%) M to F; ratio 1:1.8.	-

Appendix E

Psychometric and Satisfaction Survey Instruments

Instrument Name and Developer	**Development and Validation Information**
APGAR Family Adaptability, Partner-ship Growth, Affection, and Resolve *Smilkstein*	Published in 1978 Initial data: 152 families in the U.S. A "friends" component was added in 1983. Utility has challenged by many including Gardner 2001
Beck Depression Inventory *Beck, Ward, Mendelson, Mock, & Erbaugh*	Published initially in 1961 with subsequent revisions It was initially evaluated in psychiatric patients in the U.S.A. Salkind (1969) evaluated its use in 80 general outpatients in the UK. Itis copyrighted and requires a fee for use
Bem Sex Role Inventory *Bem*	Published 1974 Initial data: 100 Stanford Undergraduates 1973 update: male 444; female 279 1978 update: 470; female 340
Body Image Questionnaire *Clement & Lowe*	Validity study published 1996 (German) Population: 405 psychosomatic patients, 141 medical students, 208 sports students
Body Image Scale *Lindgren & Pauly (Kuiper, Dutch adaptation 1991)*	1975 Initial data: 16 male and 16 female transsexual patients in Oregon
Crown Crisp Experiential Index (formerly Middlesex Hospital Questionnaire) *Crown & Crisp*	Developed circa 1966 Manual published 1970 Initial data: 52 nursing students while in class in the UK
(2nd) European Quality of Life Survey *Anderson, Mikuliç, Vermeylen, Lyly-Yrjanainen, & Zigante,*	Published in 2007 The pilot survey was tested in the UK and Holland with 200 interviews. The survey was revised especially for non-response questions. Another version was tested in 25 persons of each of the 31 countries to be surveyed. Sampling methods were devised. 35,634 Europeans were ultimately surveyed. Additional updates
Female Sexual Function Index *Rosen, Brown, Heiman, Leiblum, Meston, Shabsigh, Ferguson, D'Agostino Wiegel, Meston, & Rosen*	Published in 2000 Initial data: 131 normal controls & 128 age-matched subjects with female sexual arousal disorder from 5 U.S. research centers. Updated 2005: the addition of those with hypoactive sexual desire disorder, female sexual orgasm disorder, dyspareunia/vaginismus, & multiple sexual dysfunctions (n=568), plus more controls (n=261).

Fragebogen zur Beurteilung des eigenen Korpers *Strauss*	Published 1996 (German)
Freiberg Personality Inventory *Fahrenberg, Hampel, & Selg*	7th edition published 2001, 8th edition in 2009 (Not in PubMed) German equivalent of MMPI
"gender identity disorder in childhood" *Smith, van Goozen, Kuiper, & Cohen-Kettenis*	11 items derived from the Biographical Questionnaire for Trans-sexuals (Verschoor Poortinga 1988) (Modified by authors of the Smith study)
Gender Identity Trait Scale *Altstotter-Gleich*	Published 1989 (German)
General Health Questionnaire *Goldberg & Blackwell (initial study)* *Goldberg & Williams (manual)*	Initial publication 1970 Manual published ?1978, 1988 (Not in PubMed) Initial data: 553 consecutive adult patients in a single UK primary care practice were assessed. Sample of 200 underwent standardized psychiatric interview. Developed to screen for hidden psychological morbidity. Proprietary test. Now 4 versions.
Hospital Anxiety & Depression Scale *Zigmond & Snaith*	Published in 1983 Initial data: Patients between 16 & 65 in outpatient clinics in the UK >100 patients; 2 refusals. 1st 50 compared to 2nd 50.
Inventory of Interpersonal Problems *Horowitz*	Published 1988 Initial data: 103 patients about to undergo psychotherapy; some patients post psycho-therapy (Kaiser Permanente-San Francisco) Proprietary test
King's Health Questionnaire *Kelleher, Cardozo, Khullar, & Salvatore*	1997 Initial data: 293 consecutive women referred for urinary incontinence evaluation in London Comparison to SF-36
Minnesota Multi-phasic Personality Inventory *Hathaway & McKinley* *Butcher, Dahlstrom, Graham, & Tellegen*	Published in 1941 Updated in 1989 with new, larger, more diverse sample. MMPI-2: 1,138 men & 462 women from diverse communities & several geographic regions in the U.S.A. The test is copyrighted.
Modified Androphia-Gynephilia Index	Neither the underlying version or the Blanchard modified version could be located in PubMed (Designed by the author of the Blanchard et al. study)
"post-operative functioning 13 items" *Doorn, Kuiper, Verschoor, Cohen-Kettenis*	Published 1996 (Dutch) (Not in PubMed) (Designed by 1 of the authors of the Smith study)
"post-operative functioning 21 items" *Doorn, Kuiper, Verschoor,*	Published 1996 (Dutch) (Not in PubMed) (Designed by 1 of the authors of the Smith study)

Cohen-Kettenis	
Scale for Depersonalization Experiences *Wolfradt*	Unpublished manuscript 1998 (University of Halle) (Designed by 1 of the authors of the Wolfradt study)
"sex trait function" *Cohen-Kettenis & van Goozen*	Published 1997 Assessed in 22 adolescents (Designed by 1 of the authors of the Smith Study)
Self-Esteem Scale *Rosenberg*	Published 1965 (Not in PubMed) Initial data: 5,024 high-school juniors & seniors from 10 randomly selected New York schools
Short-Form 36 *RAND* *Ware & Sherbourne1992* *McHorney, Ware, & Raczek 1993*	Originally derived from the Rand Medical Outcomes Study (n=2471 in version 1; 6742 in version 2 1989). The earliest test version is free. Alternative scoring has been developed. There is a commercial version with a manual.
Social Anxiety & Distress Scale *Watson & Friend*	Initial publication in1969 Requires permission for use
Social Support Scale *Van Tilburg 1988*	Published 1988 (Dutch) (Not in PubMed)
Spielberger State & Trait Anxiety Questionnaire *Spielberger, Gorsuch, Lushene, Vagg, & Jacobs*	Current format published in 1983 Proprietary test
Symptom Checklist-90 *Derogatis, Lipman, Covi Derogatis & Cleary*	Published in 1973 & 1977 Reportedly with normative data for psychiatric patients (in- & out-patient) & normal subjects in the U.S. Has undergone a revision Requires qualification for use
Tennessee Self-Concept Scale *Fitts & Warren*	In use prior to 1988 publication. Initial data: 131 psychiatric day care patients. Updated manual published 1996. Update population >3000 with age stratification. No other innformation available. Requires qualification for use
Utrecht Gender Dysphoria Scale *Cohen-Kettenis & van Goozen*	Published in 1997 Initial population: 22 transgender adolescents who underwent reassignment surgery. (Designed by 1 of the authors of the Smith study)
WHO-Quality of Life (abbreviated version) *Harper for WHO group*	Field trial version released 1996 Tested in multiple countries. The Seattle site consisted of 192 of the 8294 subjects tested). Population not otherwise described. The minimal clinically important difference has not been determined. Permission required

Althof et al., 1983; Greenberg, Frank, 1965; Gurtman, 1996; Lang, Vernon, 1977; Paap et al., 2012; Salkind et al., 1969; Vacchiano, Strauss, 1968.

Appendix F

Endpoint Data Types and Sources

Panel A (Controlled Studies)

Author	National Data	Instrument w Substantive Normative Data	Instrument w/o Substan-tive &/or Accessible Normative Data	Investigator-designed	Other	Other
Dhejne 2011	Yes	-	-	-	-	Mortality (Suicide, Cardiovascular Disease [possible adverse events from Hormone Tx], Cancer), Psych hx & hospitalization, Suicide attempts
Dhejne Landén	Yes	-	-	-	Includes demographics*	Education, Employment, Formal application for reversal of status, Psych dx & tx, Substance abuse** More elements in earlier paper
Beatrice	-	MMPI form R, TSCS	-	-	Demographic	Education, Income, Relationships
Haraldsen	-	SCL-90/90R	-	-	Demographic	DSM Axis 1, II, V (GAF), Substance abuse
Heylens	-	SCL-90	-	Yes-2	Demographic	Employment, Relationships, Substance abuse, Suicide attempts
Ainsworth	-	Likely SF-36v2*	-	Yes-1	Demographic	-
Ruppin	-	SCL-90R	BSRI, FPI-R, IIP	Yes-2	Demographic	Adverse events from surgery, Employment, Psych tx, Relationships, Substance abuse
Smith	-	MMPI-short, SCL-90?R	BIS, UGDS, ? Cohen-Kettenis', Doorn's x2, (Gid-c, SSS)	Yes-1 or 2	Demographic	Adverse events from surgery, Employment, Relationships
Udeze Megeri	-	SCL-90R	BDI, GHQ, HADS,STAI-X1, STAI-X2	-	-	Psych eval & ICD-10 dx
Kuhn	-	-	KHQ	Yes-1	Demographic	Relationships

Mate-Kole 1990	-	-	BSRI, CCEI	Yes-1	Demographic	Employment (relative change), Psych hx, Suicide hx
Wolfradt	-	-	BIQ, GITS, SDE, SES	Yes-1	-	-
Kraemer	-	-	FBeK	-	Demographic	-
Mate-Kole 1988	-	-	BSRI, CCEI	-	Demographic	Employment, Psych hx, Suicide hx,
Kockott	-	-	-	Yes-1	Demographic	Employment, Income, Relationships, Suicide attempts
Meyer	-	-	-	Yes-1	Demographic	Education, Employment, Income, Psych tx, Phallus removal request
Rakic	-	-	-	Yes-1	Demographic	Employment, Relationships

Panel B (Surgical Series: No Concurrent Controls)

Author	**National Data**	**Instrument w Substantive Normative Data**	**Instrument w/o Substantive &/or Accessible Normative Data**	**Investigator-designed**	**Other**	**Other**
Weyers	-	SF-36	FSFI	Yes-2	Demographic	Hormone levels, Adverse events from surgery, Relationships
Blanchard	-	SCL-90R	(AG)	Yes-1	Demographic	Education, Employment, Income, Relationships, Suicide (Incidental finding)
Wierckx	-	SF-36	-	Yes-3	Demographic	Hormone levels, Adverse events from surgery, Relationships
Eldh	-	-	-	Yes-1	-	Adverse events from surgery, Employment, Relationships, Suicide attempts

Hess	-	-	-	Yes-1	-	-
Lawrence	-	-	-	Yes-4	Demographic	Adverse events from surgery
Salvador	-	-	-	Yes-1	Demographic	Relationships
Tsoi	-	-	-	Yes-1	Demographic	Education, Employment, Relationships (relative change)

Panel C (Mixed Treatment Series: No Direct Control Groups)

Author	**National Data**	**Instrument w Substantive Normative Data**	**Instrument w/o Sub-stantive &/or Accessible Normative Data**	**Investigator-designed**	**Other**	**Other**
Asscheman et al.	Yes	-	-	-	Demographic	Mortality (HIV, Possible adverse events from Hormone Tx, Substance abuse, Suicide)
Motmans et al.	-	SF36 EQOLS (2nd)	-	-	Demographic	Education, Employment, Income, Relationships
Newfield et al.	-	SF-36v2	-	-	Demographic	Income
Gómez-Gil et al. 2014	-	WHOQOL-BREF	APGAR	Yes-1	Demographic	Education, Employment, Relationships
Gómez-Gil et al. 2012	-	-	HADS, SADS	-	Demographic	Education, Employment, Living arrangements
Hepp et al.	-	-	HADS	-	Demographic	DSM Axis 1& II Psych dx
Johansson et al.	-	-	-	Yes-1	Demographic	Axis V change (Pt & Clinician) Employment (relative change) Relationship (relative change)
Leinung et al.	-	-	-	-	Demographic	Employment, Disability, DVT, HIV status, Psych dx

*Listed as San Francisco-36 in manuscript

** From medical charts & verdicts ?=Possibly self-designed

AG=Androphilia-Gynephilia Index (investigator designed 1985) (used more for classification)

APGAR=Family Adaptability, Partnership growth, Affection, and Resolve

BDI=Beck Depression Inventory

BIQ=Body Image Questionnaire
BIS=Body Image Scale
BSRI=Bem Sex Role Inventory
CCEI=Crown Crisp Experiential Index
Cohen-Kettenis'= Sex trait function (An author helped design)
Dorn's x2= Post-operative functioning 13 items (An author helped design)
Post-operative functioning 21 items (An author helped design)
EQOLS (2nd)=2nd European Quality of Life Survey
FBeK=Fragebogen zur Beurteilung des eigenen Korpers
FPI-R=A version of the Freiberg Personality Inventory
FSFI+Female Sexual Function Index
GHQ=General Health Questionnaire
Gid-c=Gender identity disorder in childhood (used more for predictors) (An author helped design)
GITS=Gender Identity Trait Scale
HADS=Hospital Anxiety Depression Scale
IIP=Inventory of Interpersonal Problems
KHQ=King's Health Questionnaire
MMPI=Minnesota Multi-phasic Personality Inventory
SADS=Social Anxiety & Distress Scale
SCL-90 (±R)=A version of the Symptom Checklist 90
SDE=Scale for Depersonalized Experiences (An author designed)
SES=Self-Esteem Scale
SF-36 (v2)=Short Form-36(version2)
SSS=Social Support Scale (used more for predictors)
STAI-X1, STAI-X2=Spielberger State and Trait Anxiety Questionnaire
TSCS=Tennessee Self-Concept Scale
UGDS=Utrecht Gender Dysphoria Scale (An author helped design)
WHOQOL-BREF=World Health Organization-Quality of Life (abbreviated version)

Appendix G.

Longitudinal Studies Which Used Patients as Their Own Controls and Which Used Psychometric Tests with Extensive Normative Data or Longitudinal Studies Which Used National Data Sets

Author		Test	Patient and Data Loss	Results
		Psychometric Test		
Heylens et al. Belgium 2014		SCL-90R	90 applicants for SRS were recruited. • 8 (8.9%) declined participation. • 12 (13.3%) excluded b/c GID-NOS dx. • 12 (13.3%) did not complete the treatment sequence b/c of psychiatric/physical co-morbidity, personal decision for no tx, or personal decision for only	At t=0, the mean global "psychoneuroticism" SCL-90R score, along with scores of 7 of 8 subscales, were statistically more pathologic than the general population. After hormone tx, the mean score for global "psychoneuroticism" normalized & remained normal after reassignment surgery.

			hormone tx. • 1 (1.1%) committed suicide during follow-up. 57 (63.3% of recruited) entered the study. • 1 (12.2% of initial recruits) had not yet received SRS by study close. →**46 (51.1% of recruited) underwent serial evaluation** • The test was not completed by 1 at t=0, 10 at t=1 (after hormone tx), & 4 at t=2 (after SRS) →**missing data for another 1.1% to 11.1%.**	
Ruppin,Pfafflin, Germany 2015		SCL-90R	The number in the available patient pool was not specified. 140 received recruitment letters. • 2 (1.4% of those with recruitment letters) had died. • 1 (0.7%) was institutionalized. • 5 (3.6%) were ill. • 8 (5.7%) did not have time. • 8 (5.7%) stated that GD was no longer an issue. • 8 (5.7%) provided no reason. • 28 (20.0%) declined further contact. • 9 (6.4%) were lost to follow-up. →**71 (50.7%) agreed to participate.** • **2 (1.4%) had not undergone SRS** • The test was not completed by 9. →**missing data for another 6.4%.**	At t=0, the "global severity index "SCL-90R score was 0.53±0.49. At post-SRS follow-up the score had decreased to 0.28±0.36. The scores were statistically different from one another, but are of limited biologic significance given the range of the score for this scale: 0-4. In the same way, all of the subscale scores were statistically different, but the effect size was reported as large only for "interpersonal sensitivity": 0.70±0.67 at t=0 and 0.26±0.34 post-SRS.
Smith et al. Holland		MMPI SCL-90	The number in the available adult patient	Most of the MMPI scales were already in the normal range at

2005			pool was not specified. 325 adult & adolescent applicants for SRS were recruited. • 103 (31.7%) were not eligible to start hormone tx & real-life experience. • 34 (10.7%) discontinued hormone tx 162 (an unknown percentage of the initial recruitment) provided pre-SRS test data. • **36 to 61 (22.2%-37.6% of those adults w pre-SRS data) did not complete post-SRS testing.**	the time of initial testing. At t=0, the global "psychoneuroticism" SCL-90 score, which included the drop-outs, was 143.0±40.7. At post SRS-follow-up, the score had decreased to 120.3±31.4. The scores were statistically different from one another, but are of limited biologic significance given the range of the score for this scale: 90 to 450, with higher scores consistent with more psychological instability.
Udeze, et al. 2008 Megeri, Khoosal 2007 UK		SCL-90R	The number in the available patient pool was not specified. 40 subjects were prospectively selected. • Post-operative testing was conducted within 6 months to minimize previously determined loss rates.	At t=0, the mean raw global score was 48.33. At post-SRS follow-up, the mean score was 49.15. There were no statistically significant changes in the global score or for any of the subscales.
	National Databases			
Dehjne Sweden 2011		Swedish National Records	804 with GID in Sweden 1973 to 2003 were identified. • 480 (59.7%) did not apply or were not approved for SRS 324 (40.3%) underwent SRS. • All were followed. 3240 controls of the natal sex and 3240 controls of the reassigned gender were randomly selected from national records	All cause mortality was higher (n=27[8%]) than in controls (H.R 2.8 [1.8-4.3]) even after adjustment for covariants. Divergence in survival curves was observed after 10 years. The major contributor was completed suicide (n=10 [3%]; adjusted H.R. 19.1 [5.8-62.9]). Suicide attempts were more common (n= 29 [9%]) than in controls (adjusted H.R. 4.9 [2.9–8.5]). Hospitalizations for psychiatric conditions (not related to gender dysphoria) were more common n= 64 [20%] than in controls (H.R. 2.8 [2.0–3.9]) even after adjusting for prior

		psychiatric morbidity.	
Dhejne et al. 2014 Landén et al. 1998 Sweden	Swedish National Registry	767 applied for SRS/legal status (1960-2010) • 25 (3.3%) applications denied. • 61 (8.0%) not granted full legal status 681 (88.7%) underwent SRS. • All were followed.	15 formal applications for reversal to natal/original gender (2.2% of the SRS population) were identified thus far (preliminary number). (Does not reflect other manifestations of regret such as suicide.)

GID-NOS=Gender Identity Disorder-Not Otherwise Specified HR=Hazard Ratio SRS=Sex reassignment surgery Tx=Treatment

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Gender Dysphoria

In this chapter, there is one overarching diagnosis of gender dysphoria, with separate developmentally appropriate criteria sets for children and for adolescents and adults. The area of sex and gender is highly controversial and has led to a proliferation of terms whose meanings vary over time and within and between disciplines. An additional source of confusion is that in English "sex" connotes both male/female and sexuality. This chapter employs constructs and terms as they are widely used by clinicians from various disciplines with specialization in this area. In this chapter, *sex* and *sexual* refer to the biological indicators of male and female (understood in the context of reproductive capacity), such as in sex chromosomes, gonads, sex hormones, and nonambiguous internal and external genitalia. Disorders of sex development denote conditions of inborn somatic deviations of the reproductive tract from the norm and/or discrepancies among the biological indicators of male and female. *Cross-sex* hormone treatment denotes the use of feminizing hormones in an individual assigned male at birth based on traditional biological indicators or the use of masculinizing hormones in an individual assigned female at birth.

The need to introduce the term *gender* arose with the realization that for individuals with conflicting or ambiguous biological indicators of sex (i.e., "intersex"), the lived role in society and/or the identification as male or female could not be uniformly associated with or predicted from the biological indicators and, later, that some individuals develop an identity as female or male at variance with their uniform set of classical biological indicators. Thus, *gender* is used to denote the public (and usually legally recognized) lived role as boy or girl, man or woman, but, in contrast to certain social constructionist theories, biological factors are seen as contributing, in interaction with social and psychological factors, to gender development. *Gender assignment* refers to the initial assignment as male or female. This occurs usually at birth and, thereby, yields the "natal gender." *Gender-atypical* refers to somatic features or behaviors that are not typical (in a statistical sense) of individuals with the same assigned gender in a given society and historical era; for behavior, *gender-nonconforming* is an alternative descriptive term. *Gender reassignment* denotes an official (and usually legal) change of gender. *Gender identity* is a category of social identity and refers to an individual's identification as male, female, or, occasionally, some category other than male or female. *Gender dysphoria* as a general descriptive term refers to an individual's affective/cognitive discontent with the assigned gender but is more specifically defined when used as a diagnostic category. *Transgender* refers to the broad spectrum of individuals who transiently or persistently identify with a gender different from their natal gender. *Transsexual* denotes an individual who seeks, or has undergone, a social transition from male to female or female to male, which in many, but not all, cases also involves a somatic transition by cross-sex hormone treatment and genital surgery (*sex reassignment surgery*).

Gender dysphoria refers to the distress that may accompany the incongruence between one's experienced or expressed gender and one's assigned gender. Although not all individuals will experience distress as a result of such incongruence, many are distressed if the desired physical interventions by means of hormones and/or surgery are not available. The current term is more descriptive than the previous DSM-IV term *gender identity disorder* and focuses on dysphoria as the clinical problem, not identity per se.

Gender Dysphoria

Diagnostic Criteria

Gender Dysphoria in Children — 302.6 (F64.2)

A. A marked incongruence between one's experienced/expressed gender and assigned gender, of at least 6 months' duration, as manifested by at least six of the following (one of which must be Criterion A1):

1. A strong desire to be of the other gender or an insistence that one is the other gender (or some alternative gender different from one's assigned gender).
2. In boys (assigned gender), a strong preference for cross-dressing or simulating female attire; or in girls (assigned gender), a strong preference for wearing only typical masculine clothing and a strong resistance to the wearing of typical feminine clothing.
3. A strong preference for cross-gender roles in make-believe play or fantasy play.
4. A strong preference for the toys, games, or activities stereotypically used or engaged in by the other gender.
5. A strong preference for playmates of the other gender.
6. In boys (assigned gender), a strong rejection of typically masculine toys, games, and activities and a strong avoidance of rough-and-tumble play; or in girls (assigned gender), a strong rejection of typically feminine toys, games, and activities.
7. A strong dislike of one's sexual anatomy.
8. A strong desire for the primary and/or secondary sex characteristics that match one's experienced gender.

B. The condition is associated with clinically significant distress or impairment in social, school, or other important areas of functioning.

Specify if:

With a disorder of sex development (e.g., a congenital adrenogenital disorder such as 255.2 [E25.0] congenital adrenal hyperplasia or 259.50 [E34.50] androgen insensitivity syndrome).

Coding note: Code the disorder of sex development as well as gender dysphoria.

Gender Dysphoria in Adolescents and Adults — 302.85 (F64.1)

A. A marked incongruence between one's experienced/expressed gender and assigned gender, of at least 6 months' duration, as manifested by at least two of the following:

1. A marked incongruence between one's experienced/expressed gender and primary and/or secondary sex characteristics (or in young adolescents, the anticipated secondary sex characteristics).
2. A strong desire to be rid of one's primary and/or secondary sex characteristics because of a marked incongruence with one's experienced/expressed gender (or in young adolescents, a desire to prevent the development of the anticipated secondary sex characteristics).
3. A strong desire for the primary and/or secondary sex characteristics of the other gender.
4. A strong desire to be of the other gender (or some alternative gender different from one's assigned gender).
5. A strong desire to be treated as the other gender (or some alternative gender different from one's assigned gender).
6. A strong conviction that one has the typical feelings and reactions of the other gender (or some alternative gender different from one's assigned gender).

B. The condition is associated with clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Specify if:

With a disorder of sex development (e.g., a congenital adrenogenital disorder such as 255.2 [E25.0] congenital adrenal hyperplasia or 259.50 [E34.50] androgen insensitivity syndrome).

Coding note: Code the disorder of sex development as well as gender dysphoria.

Specify if:

Posttransition: The individual has transitioned to full-time living in the desired gender (with or without legalization of gender change) and has undergone (or is preparing to have) at least one cross-sex medical procedure or treatment regimen—namely, regular cross-sex hormone treatment or gender reassignment surgery confirming the desired gender (e.g., penectomy, vaginoplasty in a natal male; mastectomy or phalloplasty in a natal female).

Specifiers

The posttransition specifier may be used in the context of continuing treatment procedures that serve to support the new gender assignment.

Diagnostic Features

Individuals with gender dysphoria have a marked incongruence between the gender they have been assigned to (usually at birth, referred to as *natal gender*) and their experienced/expressed gender. This discrepancy is the core component of the diagnosis. There must also be evidence of distress about this incongruence. Experienced gender may include alternative gender identities beyond binary stereotypes. Consequently, the distress is not limited to a desire to simply be of the other gender, but may include a desire to be of an alternative gender, provided that it differs from the individual's assigned gender.

Gender dysphoria manifests itself differently in different age groups. Prepubertal natal girls with gender dysphoria may express the wish to be a boy, assert they are a boy, or assert they will grow up to be a man. They prefer boys' clothing and hairstyles, are often perceived by strangers as boys, and may ask to be called by a boy's name. Usually, they display intense negative reactions to parental attempts to have them wear dresses or other feminine attire. Some may refuse to attend school or social events where such clothes are required. These girls may demonstrate marked cross-gender identification in role-playing, dreams, and fantasies. Contact sports, rough-and-tumble play, traditional boyhood games, and boys as playmates are most often preferred. They show little interest in stereotypically feminine toys (e.g., dolls) or activities (e.g., feminine dress-up or role-play). Occasionally, they refuse to urinate in a sitting position. Some natal girls may express a desire to have a penis or claim to have a penis or that they will grow one when older. They may also state that they do not want to develop breasts or menstruate.

Prepubertal natal boys with gender dysphoria may express the wish to be a girl or assert they are a girl or that they will grow up to be a woman. They have a preference for dressing in girls' or women's clothes or may improvise clothing from available materials (e.g., using towels, aprons, and scarves for long hair or skirts). These children may role-play female figures (e.g., playing "mother") and often are intensely interested in female fantasy figures. Traditional feminine activities, stereotypical games, and pastimes (e.g., "playing house"; drawing feminine pictures; watching television or videos of favorite female characters) are most often preferred. Stereotypical female-type dolls (e.g., Barbie) are often favorite toys, and girls are their preferred playmates. They avoid rough-and-tumble play and competitive sports and have little interest in stereotypically masculine toys (e.g., cars, trucks). Some may pretend not to have a penis and insist on sitting to urinate. More

rarely, they may state that they find their penis or testes disgusting, that they wish them removed, or that they have, or wish to have, a vagina.

In young adolescents with gender dysphoria, clinical features may resemble those of children or adults with the condition, depending on developmental level. As secondary sex characteristics of young adolescents are not yet fully developed, these individuals may not state dislike of them, but they are concerned about imminent physical changes.

In adults with gender dysphoria, the discrepancy between experienced gender and physical sex characteristics is often, but not always, accompanied by a desire to be rid of primary and/or secondary sex characteristics and/or a strong desire to acquire some primary and/or secondary sex characteristics of the other gender. To varying degrees, adults with gender dysphoria may adopt the behavior, clothing, and mannerisms of the experienced gender. They feel uncomfortable being regarded by others, or functioning in society, as members of their assigned gender. Some adults may have a strong desire to be of a different gender and treated as such, and they may have an inner certainty to feel and respond as the experienced gender without seeking medical treatment to alter body characteristics. They may find other ways to resolve the incongruence between experienced/expressed and assigned gender by partially living in the desired role or by adopting a gender role neither conventionally male nor conventionally female.

Associated Features Supporting Diagnosis

When visible signs of puberty develop, natal boys may shave their legs at the first signs of hair growth. They sometimes bind their genitals to make erections less visible. Girls may bind their breasts, walk with a stoop, or use loose sweaters to make breasts less visible. Increasingly, adolescents request, or may obtain without medical prescription and supervision, hormonal suppressors ("blockers") of gonadal steroids (e.g., gonadotropin-releasing hormone [GnRH] analog, spironolactone). Clinically referred adolescents often want hormone treatment and many also wish for gender reassignment surgery. Adolescents living in an accepting environment may openly express the desire to be and be treated as the experienced gender and dress partly or completely as the experienced gender, have a hairstyle typical of the experienced gender, preferentially seek friendships with peers of the other gender, and/or adopt a new first name consistent with the experienced gender. Older adolescents, when sexually active, usually do not show or allow partners to touch their sexual organs. For adults with an aversion toward their genitals, sexual activity is constrained by the preference that their genitals not be seen or touched by their partners. Some adults may seek hormone treatment (sometimes without medical prescription and supervision) and gender reassignment surgery. Others are satisfied with either hormone treatment or surgery alone.

Adolescents and adults with gender dysphoria before gender reassignment are at increased risk for suicidal ideation, suicide attempts, and suicides. After gender reassignment, adjustment may vary, and suicide risk may persist.

Prevalence

For natal adult males, prevalence ranges from 0.005% to 0.014%, and for natal females, from 0.002% to 0.003%. Since not all adults seeking hormone treatment and surgical reassignment attend specialty clinics, these rates are likely modest underestimates. Sex differences in rate of referrals to specialty clinics vary by age group. In children, sex ratios of natal boys to girls range from 2:1 to 4.5:1. In adolescents, the sex ratio is close to parity; in adults, the sex ratio favors natal males, with ratios ranging from 1:1 to 6.1:1. In two countries, the sex ratio appears to favor natal females (Japan: 2.2:1; Poland: 3.4:1).

Development and Course

Because expression of gender dysphoria varies with age, there are separate criteria sets for children versus adolescents and adults. Criteria for children are defined in a more con-

crete, behavioral manner than those for adolescents and adults. Many of the core criteria draw on well-documented behavioral gender differences between typically developing boys and girls. Young children are less likely than older children, adolescents, and adults to express extreme and persistent anatomic dysphoria. In adolescents and adults, incongruence between experienced gender and somatic sex is a central feature of the diagnosis. Factors related to distress and impairment also vary with age. A very young child may show signs of distress (e.g., intense crying) only when parents tell the child that he or she is "really" not a member of the other gender but only "desires" to be. Distress may not be manifest in social environments supportive of the child's desire to live in the role of the other gender and may emerge only if the desire is interfered with. In adolescents and adults, distress may manifest because of strong incongruence between experienced gender and somatic sex. Such distress may, however, be mitigated by supportive environments and knowledge that biomedical treatments exist to reduce incongruence. Impairment (e.g., school refusal, development of depression, anxiety, and substance abuse) may be a consequence of gender dysphoria.

Gender dysphoria without a disorder of sex development. For clinic-referred children, onset of cross-gender behaviors is usually between ages 2 and 4 years. This corresponds to the developmental time period in which most typically developing children begin expressing gendered behaviors and interests. For some preschool-age children, both pervasive cross-gender behaviors and the expressed desire to be the other gender may be present, or, more rarely, labeling oneself as a member of the other gender may occur. In some cases, the expressed desire to be the other gender appears later, usually at entry into elementary school. A small minority of children express discomfort with their sexual anatomy or will state the desire to have a sexual anatomy corresponding to the experienced gender ("anatomic dysphoria"). Expressions of anatomic dysphoria become more common as children with gender dysphoria approach and anticipate puberty.

Rates of persistence of gender dysphoria from childhood into adolescence or adulthood vary. In natal males, persistence has ranged from 2.2% to 30%. In natal females, persistence has ranged from 12% to 50%. Persistence of gender dysphoria is modestly correlated with dimensional measures of severity ascertained at the time of a childhood baseline assessment. In one sample of natal males, lower socioeconomic background was also modestly correlated with persistence. It is unclear if particular therapeutic approaches to gender dysphoria in children are related to rates of long-term persistence. Extant follow-up samples consisted of children receiving no formal therapeutic intervention or receiving therapeutic interventions of various types, ranging from active efforts to reduce gender dysphoria to a more neutral, "watchful waiting" approach. It is unclear if children "encouraged" or supported to live socially in the desired gender will show higher rates of persistence, since such children have not yet been followed longitudinally in a systematic manner. For both natal male and female children showing persistence, almost all are sexually attracted to individuals of their natal sex. For natal male children whose gender dysphoria does not persist, the majority are *androphilic* (sexually attracted to males) and often self-identify as gay or homosexual (ranging from 63% to 100%). In natal female children whose gender dysphoria does not persist, the percentage who are *gynephilic* (sexually attracted to females) and self-identify as lesbian is lower (ranging from 32% to 50%).

In both adolescent and adult natal males, there are two broad trajectories for development of gender dysphoria: early onset and late onset. *Early-onset gender dysphoria* starts in childhood and continues into adolescence and adulthood; or, there is an intermittent period in which the gender dysphoria desists and these individuals self-identify as gay or homosexual, followed by recurrence of gender dysphoria. *Late-onset gender dysphoria* occurs around puberty or much later in life. Some of these individuals report having had a desire to be of the other gender in childhood that was not expressed verbally to others. Others do not recall any signs of childhood gender dysphoria. For adolescent males with late-onset gender dysphoria, parents often report surprise because they did not see signs of gender

dysphoria during childhood. Expressions of anatomic dysphoria are more common and salient in adolescents and adults once secondary sex characteristics have developed.

Adolescent and adult natal males with early-onset gender dysphoria are almost always sexually attracted to men (androphilic). Adolescents and adults with late-onset gender dysphoria frequently engage in transvestic behavior with sexual excitement. The majority of these individuals are gynephilic or sexually attracted to other posttransition natal males with late-onset gender dysphoria. A substantial percentage of adult males with late-onset gender dysphoria cohabit with or are married to natal females. After gender transition, many self-identify as lesbian. Among adult natal males with gender dysphoria, the early-onset group seeks out clinical care for hormone treatment and reassignment surgery at an earlier age than does the late-onset group. The late-onset group may have more fluctuations in the degree of gender dysphoria and be more ambivalent about and less likely satisfied after gender reassignment surgery.

In both adolescent and adult natal females, the most common course is the early-onset form of gender dysphoria. The late-onset form is much less common in natal females compared with natal males. As in natal males with gender dysphoria, there may have been a period in which the gender dysphoria desisted and these individuals self-identified as lesbian; however, with recurrence of gender dysphoria, clinical consultation is sought, often with the desire for hormone treatment and reassignment surgery. Parents of natal adolescent females with the late-onset form also report surprise, as no signs of childhood gender dysphoria were evident. Expressions of anatomic dysphoria are much more common and salient in adolescents and adults than in children.

Adolescent and adult natal females with early-onset gender dysphoria are almost always gynephilic. Adolescents and adults with the late-onset form of gender dysphoria are usually androphilic and after gender transition self-identify as gay men. Natal females with the late-onset form do not have co-occurring transvestic behavior with sexual excitement.

Gender dysphoria in association with a disorder of sex development. Most individuals with a disorder of sex development who develop gender dysphoria have already come to medical attention at an early age. For many, starting at birth, issues of gender assignment were raised by physicians and parents. Moreover, as infertility is quite common for this group, physicians are more willing to perform cross-sex hormone treatments and genital surgery before adulthood.

Disorders of sex development in general are frequently associated with gender-atypical behavior starting in early childhood. However, in the majority of cases, this does not lead to gender dysphoria. As individuals with a disorder of sex development become aware of their medical history and condition, many experience uncertainty about their gender, as opposed to developing a firm conviction that they are another gender. However, most do not progress to gender transition. Gender dysphoria and gender transition may vary considerably as a function of a disorder of sex development, its severity, and assigned gender.

Risk and Prognostic Factors

Temperamental. For individuals with gender dysphoria without a disorder of sex development, atypical gender behavior among individuals with early-onset gender dysphoria develops in early preschool age, and it is possible that a high degree of atypicality makes the development of gender dysphoria and its persistence into adolescence and adulthood more likely.

Environmental. Among individuals with gender dysphoria without a disorder of sex development, males with gender dysphoria (in both childhood and adolescence) more commonly have older brothers than do males without the condition. Additional predisposing

factors under consideration, especially in individuals with late-onset gender dysphoria (adolescence, adulthood), include habitual fetishistic transvestism developing into autogynephilia (i.e., sexual arousal associated with the thought or image of oneself as a woman) and other forms of more general social, psychological, or developmental problems.

Genetic and physiological. For individuals with gender dysphoria without a disorder of sex development, some genetic contribution is suggested by evidence for (weak) familiality of transsexualism among nontwin siblings, increased concordance for transsexualism in monozygotic compared with dizygotic same-sex twins, and some degree of heritability of gender dysphoria. As to endocrine findings, no endogenous systemic abnormalities in sex-hormone levels have been found in 46,XY individuals, whereas there appear to be increased androgen levels (in the range found in hirsute women but far below normal male levels) in 46,XX individuals. Overall, current evidence is insufficient to label gender dysphoria without a disorder of sex development as a form of intersexuality limited to the central nervous system.

In gender dysphoria associated with a disorder of sex development, the likelihood of later gender dysphoria is increased if prenatal production and utilization (via receptor sensitivity) of androgens are grossly atypical relative to what is usually seen in individuals with the same assigned gender. Examples include 46,XY individuals with a history of normal male prenatal hormone milieu but inborn nonhormonal genital defects (as in cloacal bladder exstrophy or penile agenesis) and who have been assigned to the female gender. The likelihood of gender dysphoria is further enhanced by additional, prolonged, highly gender-atypical postnatal androgen exposure with somatic virilization as may occur in female-raised and noncastrated 46,XY individuals with 5-alpha reductase-2 deficiency or 17-beta-hydroxysteroid dehydrogenase-3 deficiency or in female-raised 46,XX individuals with classical congenital adrenal hyperplasia with prolonged periods of non-adherence to glucocorticoid replacement therapy. However, the prenatal androgen milieu is more closely related to gendered behavior than to gender identity. Many individuals with disorders of sex development and markedly gender-atypical behavior do not develop gender dysphoria. Thus, gender-atypical behavior by itself should not be interpreted as an indicator of current or future gender dysphoria. There appears to be a higher rate of gender dysphoria and patient-initiated gender change from assigned female to male than from assigned male to female in 46,XY individuals with a disorder of sex development.

Culture-Related Diagnostic Issues

Individuals with gender dysphoria have been reported across many countries and cultures. The equivalent of gender dysphoria has also been reported in individuals living in cultures with institutionalized gender categories other than male or female. It is unclear whether with these individuals the diagnostic criteria for gender dysphoria would be met.

Diagnostic Markers

Individuals with a somatic disorder of sex development show some correlation of final gender identity outcome with the degree of prenatal androgen production and utilization. However, the correlation is not robust enough for the biological factor, where ascertainable, to replace a detailed and comprehensive diagnostic interview evaluation for gender dysphoria.

Functional Consequences of Gender Dysphoria

Preoccupation with cross-gender wishes may develop at all ages after the first 2–3 years of childhood and often interfere with daily activities. In older children, failure to develop age-typical same-sex peer relationships and skills may lead to isolation from peer groups and to distress. Some children may refuse to attend school because of teasing and harass-

ment or pressure to dress in attire associated with their assigned sex. Also in adolescents and adults, preoccupation with cross-gender wishes often interferes with daily activities. Relationship difficulties, including sexual relationship problems, are common, and functioning at school or at work may be impaired. Gender dysphoria, along with atypical gender expression, is associated with high levels of stigmatization, discrimination, and victimization, leading to negative self-concept, increased rates of mental disorder comorbidity, school dropout, and economic marginalization, including unemployment, with attendant social and mental health risks, especially in individuals from resource-poor family backgrounds. In addition, these individuals' access to health services and mental health services may be impeded by structural barriers, such as institutional discomfort or inexperience in working with this patient population.

Differential Diagnosis

Nonconformity to gender roles. Gender dysphoria should be distinguished from simple nonconformity to stereotypical gender role behavior by the strong desire to be of another gender than the assigned one and by the extent and pervasiveness of gender-variant activities and interests. The diagnosis is not meant to merely describe nonconformity to stereotypical gender role behavior (e.g., "tomboyism" in girls, "girly-boy" behavior in boys, occasional cross-dressing in adult men). Given the increased openness of atypical gender expressions by individuals across the entire range of the transgender spectrum, it is important that the clinical diagnosis be limited to those individuals whose distress and impairment meet the specified criteria.

Transvestic disorder. Transvestic disorder occurs in heterosexual (or bisexual) adolescent and adult males (rarely in females) for whom cross-dressing behavior generates sexual excitement and causes distress and/or impairment without drawing their primary gender into question. It is occasionally accompanied by gender dysphoria. An individual with transvestic disorder who also has clinically significant gender dysphoria can be given both diagnoses. In many cases of late-onset gender dysphoria in gynephilic natal males, transvestic behavior with sexual excitement is a precursor.

Body dysmorphic disorder. An individual with body dysmorphic disorder focuses on the alteration or removal of a specific body part because it is perceived as abnormally formed, not because it represents a repudiated assigned gender. When an individual's presentation meets criteria for both gender dysphoria and body dysmorphic disorder, both diagnoses can be given. Individuals wishing to have a healthy limb amputated (termed by some *body integrity identity disorder*) because it makes them feel more "complete" usually do not wish to change gender, but rather desire to live as an amputee or a disabled person.

Schizophrenia and other psychotic disorders. In schizophrenia, there may rarely be delusions of belonging to some other gender. In the absence of psychotic symptoms, insistence by an individual with gender dysphoria that he or she is of some other gender is not considered a delusion. Schizophrenia (or other psychotic disorders) and gender dysphoria may co-occur.

Other clinical presentations. Some individuals with an emasculinization desire who develop an alternative, nonmale/nonfemale gender identity do have a presentation that meets criteria for gender dysphoria. However, some males seek castration and/or penectomy for aesthetic reasons or to remove psychological effects of androgens without changing male identity; in these cases, the criteria for gender dysphoria are not met.

Comorbidity

Clinically referred children with gender dysphoria show elevated levels of emotional and behavioral problems—most commonly, anxiety, disruptive and impulse-control, and de-

pressive disorders. In prepubertal children, increasing age is associated with having more behavioral or emotional problems; this is related to the increasing non-acceptance of gender-variant behavior by others. In older children, gender-variant behavior often leads to peer ostracism, which may lead to more behavioral problems. The prevalence of mental health problems differs among cultures; these differences may also be related to differences in attitudes toward gender variance in children. However, also in some non-Western cultures, anxiety has been found to be relatively common in individuals with gender dysphoria, even in cultures with accepting attitudes toward gender-variant behavior. Autism spectrum disorder is more prevalent in clinically referred children with gender dysphoria than in the general population. Clinically referred adolescents with gender dysphoria appear to have comorbid mental disorders, with anxiety and depressive disorders being the most common. As in children, autism spectrum disorder is more prevalent in clinically referred adolescents with gender dysphoria than in the general population. Clinically referred adults with gender dysphoria may have coexisting mental health problems, most commonly anxiety and depressive disorders.

Other Specified Gender Dysphoria

302.6 (F64.8)

This category applies to presentations in which symptoms characteristic of gender dysphoria that cause clinically significant distress or impairment in social, occupational, or other important areas of functioning predominate but do not meet the full criteria for gender dysphoria. The other specified gender dysphoria category is used in situations in which the clinician chooses to communicate the specific reason that the presentation does not meet the criteria for gender dysphoria. This is done by recording "other specified gender dysphoria" followed by the specific reason (e.g., "brief gender dysphoria").

An example of a presentation that can be specified using the "other specified" designation is the following:

The current disturbance meets symptom criteria for gender dysphoria, but the duration is less than 6 months.

Unspecified Gender Dysphoria

302.6 (F64.9)

This category applies to presentations in which symptoms characteristic of gender dysphoria that cause clinically significant distress or impairment in social, occupational, or other important areas of functioning predominate but do not meet the full criteria for gender dysphoria. The unspecified gender dysphoria category is used in situations in which the clinician chooses *not* to specify the reason that the criteria are not met for gender dysphoria, and includes presentations in which there is insufficient information to make a more specific diagnosis.

DOC. 69-18

DEFENDANT'S EXHIBIT 18

WPATH WORLD PROFESSIONAL ASSOCIATION for TRANSGENDER HEALTH

Standards of Care

for the Health of Transsexual, Transgender, and Gender-Nonconforming People

The World Professional Association for Transgender Health

www.wpath.org

Version 7

Standards of Care

for the Health of Transsexual, Transgender, and Gender-Nonconforming People

Eli Coleman, Walter Bockting, Marsha Botzer, Peggy Cohen-Kettenis, Griet DeCuypere, Jamie Feldman, Lin Fraser, Jamison Green, Gail Knudson, Walter J. Meyer, Stan Monstrey, Richard K. Adler, George R. Brown, Aaron H. Devor, Randall Ehrbar, Randi Ettner, Evan Eyler, Rob Garofalo, Dan H. Karasic, Arlene Istar Lev, Gal Mayer, Heino Meyer-Bahlburg, Blaine Paxton Hall, Friedmann Pfäfflin, Katherine Rachlin, Bean Robinson, Loren S. Schechter, Vin Tangpricha, Mick van Trotsenburg, Anne Vitale, Sam Winter, Stephen Whittle, Kevan R. Wylie & Ken Zucker

7th Version[1] | www.wpath.org

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1 This is the seventh version of the *Standards of Care* since the original 1979 document. Previous revisions were in 1980, 1981, 1990, 1998, and 2001. Version seven was published in the International Journal of Transgenderism, 13(4), 165–232. doi:10.1080/15532739.2011.700873

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Purpose and Use of the *Standards of Care*

The World Professional Association for Transgender Health (WPATH)[I] is an international, multidisciplinary, professional association whose mission is to promote evidence-based care, education, research, advocacy, public policy, and respect in transsexual and transgender health. The vision of WPATH is a world wherein transsexual, transgender, and gender-nonconforming people benefit from access to evidence-based health care, social services, justice, and equality.

One of the main functions of WPATH is to promote the highest standards of health care for individuals through the articulation of *Standards of Care (SOC) for the Health of Transsexual, Transgender, and Gender Nonconforming People*. The *SOC* are based on the best available science and expert professional consensus.[II] Most of the research and experience in this field comes from a North American and Western European perspective; thus, adaptations of the *SOC* to other parts of the world are necessary. Suggestions for ways of thinking about cultural relativity and cultural competence are included in this version of the *SOC*.

The overall goal of the *SOC* is to provide clinical guidance for health professionals to assist transsexual, transgender, and gender-nonconforming people with safe and effective pathways to achieving lasting personal comfort with their gendered selves, in order to maximize their overall health, psychological well-being, and self-fulfillment. This assistance may include primary care, gynecologic and urologic care, reproductive options, voice and communication therapy, mental health services (e.g., assessment, counseling, psychotherapy), and hormonal and surgical treatments. While this is primarily a document for health professionals, the *SOC* may also be used by individuals, their families, and social institutions to understand how they can assist with promoting optimal health for members of this diverse population.

WPATH recognizes that health is dependent upon not only good clinical care but also social and political climates that provide and ensure social tolerance, equality, and the full rights of citizenship. Health is promoted through public policies and legal reforms that promote tolerance and equity

I Formerly the Harry Benjamin International Gender Dysphoria Association

II The *Standards of Care (SOC), Version 7,* represents a significant departure from previous versions. Changes in this version are based upon significant cultural shifts, advances in clinical knowledge, and appreciation of the many health care issues that can arise for transsexual, transgender, and gender-nonconforming people beyond hormone therapy and surgery (Coleman, 2009a, b, c, d).

for gender and sexual diversity and that eliminate prejudice, discrimination, and stigma. WPATH is committed to advocacy for these changes in public policies and legal reforms.

The *Standards of Care* Are Flexible Clinical Guidelines

The *SOC* are intended to be flexible in order to meet the diverse health care needs of transsexual, transgender, and gender-nonconforming people. While flexible, they offer standards for promoting optimal health care and guiding the treatment of people experiencing gender dysphoria—broadly defined as discomfort or distress that is caused by a discrepancy between a person's gender identity and that person's sex assigned at birth (and the associated gender role and/or primary and secondary sex characteristics) (Fisk, 1974; Knudson, De Cuypere, & Bockting, 2010b).

As in all previous versions of the *SOC*, the criteria put forth in this document for hormone therapy and surgical treatments for gender dysphoria are clinical guidelines; individual health professionals and programs may modify them. Clinical departures from the *SOC* may come about because of a patient's unique anatomic, social, or psychological situation; an experienced health professional's evolving method of handling a common situation; a research protocol; lack of resources in various parts of the world; or the need for specific harm-reduction strategies. These departures should be recognized as such, explained to the patient, and documented through informed consent for quality patient care and legal protection. This documentation is also valuable for the accumulation of new data, which can be retrospectively examined to allow for health care—and the *SOC*—to evolve.

The *SOC* articulate standards of care but also acknowledge the role of making informed choices and the value of harm-reduction approaches. In addition, this version of the *SOC* recognizes and validates various expressions of gender that may not necessitate psychological, hormonal, or surgical treatments. Some patients who present for care will have made significant self-directed progress towards gender role changes, transition, or other resolutions regarding their gender identity or gender dysphoria. Other patients will require more intensive services. Health professionals can use the *SOC* to help patients consider the full range of health services open to them, in accordance with their clinical needs and goals for gender expression.

Global Applicability of the *Standards of Care*

While the *SOC* are intended for worldwide use, WPATH acknowledges that much of the recorded clinical experience and knowledge in this area of health care is derived from North American and Western European sources. From place to place, both across and within nations, there are differences in all of the following: social attitudes towards transsexual, transgender, and gender-nonconforming people; constructions of gender roles and identities; language used to describe different gender identities; epidemiology of gender dysphoria; access to and cost of treatment; therapies offered; number and type of professionals who provide care; and legal and policy issues related to this area of health care (Winter, 2009).

It is impossible for the *SOC* to reflect all of these differences. In applying these standards to other cultural contexts, health professionals must be sensitive to these differences and adapt the *SOC* according to local realities. For example, in a number of cultures, gender-nonconforming people are found in such numbers and living in such ways as to make them highly socially visible (Peletz, 2006). In settings such as these, it is common for people to initiate a change in their gender expression and physical characteristics while in their teens or even earlier. Many grow up and live in a social, cultural, and even linguistic context quite unlike that of Western cultures. Yet almost all experience prejudice (Peletz, 2006; Winter, 2009). In many cultures, social stigma towards gender nonconformity is widespread and gender roles are highly prescriptive (Winter et al., 2009). Gender-nonconforming people in these settings are forced to be hidden and, therefore, may lack opportunities for adequate health care (Winter, 2009).

The *SOC* are not intended to limit efforts to provide the best available care to all individuals. Health professionals throughout the world—even in areas with limited resources and training opportunities—can apply the many core principles that undergird the *SOC*. These principles include the following: Exhibit respect for patients with nonconforming gender identities (do not pathologize differences in gender identity or expression); provide care (or refer to knowledgeable colleagues) that affirms patients' gender identities and reduces the distress of gender dysphoria, when present; become knowledgeable about the health care needs of transsexual, transgender, and gender-nonconforming people, including the benefits and risks of treatment options for gender dysphoria; match the treatment approach to the specific needs of patients, particularly their goals for gender expression and need for relief from gender dysphoria; facilitate access to appropriate care; seek patients' informed consent before providing treatment; offer continuity of care; and be prepared to support and advocate for patients within their families and communities (schools, workplaces, and other settings).

Terminology is culture- and time-dependent and is rapidly evolving. It is important to use respectful language in different places and times, and among different people. As the *SOC* are translated into other languages, great care must be taken to ensure that the meanings of terms are accurately translated. Terminology in English may not be easily translated into other languages, and vice versa. Some languages do not have equivalent words to describe the various terms within this document; hence, translators should be cognizant of the underlying goals of treatment and articulate culturally applicable guidance for reaching those goals.

The Difference Between Gender Nonconformity and Gender Dysphoria

Being Transsexual, Transgender, or Gender-Nonconforming Is a Matter of Diversity, Not Pathology

WPATH released a statement in May 2010 urging the de-psychopathologization of gender nonconformity worldwide (WPATH Board of Directors, 2010). This statement noted that "the expression of gender characteristics, including identities, that are not stereotypically associated with one's assigned sex at birth is a common and culturally diverse human phenomenon [that] should not be judged as inherently pathological or negative."

Unfortunately, there is stigma attached to gender nonconformity in many societies around the world. Such stigma can lead to prejudice and discrimination, resulting in "minority stress" (I. H. Meyer, 2003). Minority stress is unique (additive to general stressors experienced by all people), socially based, and chronic, and may make transsexual, transgender, and gender-nonconforming individuals more vulnerable to developing mental health concerns such as anxiety and depression (Institute of Medicine, 2011). In addition to prejudice and discrimination in society at large, stigma can contribute to abuse and neglect in one's relationships with peers and family members, which in turn can lead to psychological distress. However, these symptoms are socially induced and are not inherent to being transsexual, transgender, or gender-nonconforming.

Gender Nonconformity Is Not the Same as Gender Dysphoria

Gender nonconformity refers to the extent to which a person's gender identity, role, or expression differs from the cultural norms prescribed for people of a particular sex (Institute of Medicine, 2011). *Gender dysphoria* refers to discomfort or distress that is caused by a discrepancy between a person's gender identity and that person's sex assigned at birth (and the associated gender role and/or primary and secondary sex characteristics) (Fisk, 1974; Knudson, De Cuypere, & Bockting, 2010b). Only *some* gender-nonconforming people experience gender dysphoria at *some* point in their lives.

Treatment is available to assist people with such distress to explore their gender identity and find a gender role that is comfortable for them (Bockting & Goldberg, 2006). Treatment is individualized: What helps one person alleviate gender dysphoria might be very different from what helps another person. This process may or may not involve a change in gender expression or body modifications. Medical treatment options include, for example, feminization or masculinization of the body through hormone therapy and/or surgery, which are effective in alleviating gender dysphoria and are medically necessary for many people. Gender identities and expressions are diverse, and hormones and surgery are just two of many options available to assist people with achieving comfort with self and identity.

Gender dysphoria can in large part be alleviated through treatment (Murad et al., 2010). Hence, while transsexual, transgender, and gender-nonconforming people may experience gender dysphoria at some points in their lives, many individuals who receive treatment will find a gender role and expression that is comfortable for them, even if these differ from those associated with their sex assigned at birth, or from prevailing gender norms and expectations.

Diagnoses Related to Gender Dysphoria

Some people experience gender dysphoria at such a level that the distress meets criteria for a formal diagnosis that might be classified as a mental disorder. Such a diagnosis is not a license for stigmatization or for the deprivation of civil and human rights. Existing classification systems such as the *Diagnostic Statistical Manual of Mental Disorders (DSM)* (American Psychiatric Association, 2000) and the *International Classification of Diseases* (*ICD*) (World Health Organization, 2007) define hundreds of mental disorders that vary in onset, duration, pathogenesis, functional disability, and treatability. All of these systems attempt to classify clusters of symptoms and conditions, not the individuals themselves. A disorder is a description of something with which a person might struggle, not a description of the person or the person's identity.

Thus, transsexual, transgender, and gender-nonconforming individuals are not inherently disordered. Rather, the distress of gender dysphoria, when present, is the concern that might be diagnosable and for which various treatment options are available. The existence of a diagnosis for such dysphoria often facilitates access to health care and can guide further research into effective treatments.

Research is leading to new diagnostic nomenclatures, and terms are changing in both the *DSM* (Cohen-Kettenis & Pfäfflin, 2010; Knudson, De Cuypere, & Bockting, 2010b; Meyer-Bahlburg, 2010; Zucker, 2010) and the *ICD*. For this reason, familiar terms are employed in the *SOC* and definitions are provided for terms that may be emerging. Health professionals should refer to the most current diagnostic criteria and appropriate codes to apply in their practice areas.

IV
Epidemiologic Considerations

Formal epidemiologic studies on the incidence[III] and prevalence[IV] of transsexualism specifically or transgender and gender-nonconforming identities in general have not been conducted, and efforts to achieve realistic estimates are fraught with enormous difficulties (Institute of Medicine, 2011; Zucker & Lawrence, 2009). Even if epidemiologic studies established that a similar proportion of transsexual, transgender, or gender-nonconforming people existed all over the world, it is likely that cultural differences from one country to another would alter both the behavioral expressions of different gender identities and the extent to which gender dysphoria—distinct from one's gender identity—is actually occurring in a population. While in most countries, crossing normative gender boundaries generates moral censure rather than compassion, there are examples in certain cultures of gender-nonconforming behaviors (e.g., in spiritual leaders) that are less stigmatized and even revered (Besnier, 1994; Bolin, 1988; Chiñas, 1995; Coleman, Colgan, & Gooren, 1992; Costa & Matzner, 2007; Jackson & Sullivan, 1999; Nanda, 1998; Taywaditep, Coleman, & Dumronggittigule, 1997).

For various reasons, researchers who have studied incidence and prevalence have tended to focus on the most easily counted subgroup of gender-nonconforming individuals: transsexual individuals who experience gender dysphoria and who present for gender-transition-related care at specialist gender clinics (Zucker & Lawrence, 2009). Most studies have been conducted in European countries such as Sweden (Wålinder, 1968, 1971), the United Kingdom (Hoenig & Kenna, 1974),

III **incidence**—the number of new cases arising in a given period (e.g., a year)
IV **prevalence**—the number of individuals having a condition, divided by the number of people in the general population

the Netherlands (Bakker, Van Kesteren, Gooren, & Bezemer, 1993; Eklund, Gooren, & Bezemer, 1988; van Kesteren, Gooren, & Megens, 1996), Germany (Weitze & Osburg, 1996), and Belgium (De Cuypere et al., 2007). One was conducted in Singapore (Tsoi, 1988).

De Cuypere and colleagues (2007) reviewed such studies, as well as conducted their own. Together, those studies span 39 years. Leaving aside two outlier findings from Pauly in 1965 and Tsoi in 1988, ten studies involving eight countries remain. The prevalence figures reported in these ten studies range from 1:11,900 to 1:45,000 for male-to-female individuals (MtF) and 1:30,400 to 1:200,000 for female-to-male (FtM) individuals. Some scholars have suggested that the prevalence is much higher, depending on the methodology used in the research (e.g., Olyslager & Conway, 2007).

Direct comparisons across studies are impossible, as each differed in their data collection methods and in their criteria for documenting a person as transsexual (e.g., whether or not a person had undergone genital reconstruction, versus had initiated hormone therapy, versus had come to the clinic seeking medically supervised transition services). The trend appears to be towards higher prevalence rates in the more recent studies, possibly indicating increasing numbers of people seeking clinical care. Support for this interpretation comes from research by Reed and colleagues (2009), who reported a doubling of the numbers of people accessing care at gender clinics in the United Kingdom every five or six years. Similarly, Zucker and colleagues (2008) reported a four- to five-fold increase in child and adolescent referrals to their Toronto, Canada clinic over a 30-year period.

The numbers yielded by studies such as these can be considered minimum estimates at best. The published figures are mostly derived from clinics where patients met criteria for severe gender dysphoria and had access to health care at those clinics. These estimates do not take into account that treatments offered in a particular clinic setting might not be perceived as affordable, useful, or acceptable by all self-identified gender dysphoric individuals in a given area. By counting only those people who present at clinics for a specific type of treatment, an unspecified number of gender dysphoric individuals are overlooked.

Other clinical observations (not yet firmly supported by systematic study) support the likelihood of a higher prevalence of gender dysphoria: (i) Previously unrecognized gender dysphoria is occasionally diagnosed when patients are seen with anxiety, depression, conduct disorder, substance abuse, dissociative identity disorders, borderline personality disorder, sexual disorders, and disorders of sex development (Cole, O'Boyle, Emory, & Meyer III, 1997). (ii) Some crossdressers, drag queens/kings or female/male impersonators, and gay and lesbian individuals may be experiencing gender dysphoria (Bullough & Bullough, 1993). (iii) The intensity of some people's gender dysphoria fluctuates below and above a clinical threshold (Docter, 1988). (iv) Gender nonconformity among FtM individuals tends to be relatively invisible in many cultures, particularly to Western health

professionals and researchers who have conducted most of the studies on which the current estimates of prevalence and incidence are based (Winter, 2009).

Overall, the existing data should be considered a starting point, and health care would benefit from more rigorous epidemiologic study in different locations worldwide.

V

Overview of Therapeutic Approaches for Gender Dysphoria

Advancements in the Knowledge and Treatment of Gender Dysphoria

In the second half of the 20th century, awareness of the phenomenon of gender dysphoria increased when health professionals began to provide assistance to alleviate gender dysphoria by supporting changes in primary and secondary sex characteristics through hormone therapy and surgery, along with a change in gender role. Although Harry Benjamin already acknowledged a spectrum of gender nonconformity (Benjamin, 1966), the initial clinical approach largely focused on identifying who was an appropriate candidate for sex reassignment to facilitate a physical change from male to female or female to male as completely as possible (e.g., Green & Fleming, 1990; Hastings, 1974). This approach was extensively evaluated and proved to be highly effective. Satisfaction rates across studies ranged from 87% of MtF patients to 97% of FtM patients (Green & Fleming, 1990), and regrets were extremely rare (1–1.5% of MtF patients and <1% of FtM patients; Pfäfflin, 1993). Indeed, hormone therapy and surgery have been found to be medically necessary to alleviate gender dysphoria in many people (American Medical Association, 2008; Anton, 2009; World Professional Association for Transgender Health, 2008).

As the field matured, health professionals recognized that while many individuals need both hormone therapy and surgery to alleviate their gender dysphoria, others need only one of these treatment options and some need neither (Bockting & Goldberg, 2006; Bockting, 2008; Lev, 2004). Often with the help of psychotherapy, some individuals integrate their trans- or cross-gender feelings into the gender role they were assigned at birth and do not feel the need to feminize or masculinize their body. For others, changes in gender role and expression are sufficient to alleviate

gender dysphoria. Some patients may need hormones, a possible change in gender role, but not surgery; others may need a change in gender role along with surgery, but not hormones. In other words, treatment for gender dysphoria has become more individualized.

As a generation of transsexual, transgender, and gender-nonconforming individuals has come of age—many of whom have benefitted from different therapeutic approaches—they have become more visible as a community and demonstrated considerable diversity in their gender identities, roles, and expressions. Some individuals describe themselves not as gender-nonconforming but as unambiguously cross-sexed (i.e., as a member of the other sex; Bockting, 2008). Other individuals affirm their unique gender identity and no longer consider themselves to be either male or female (Bornstein, 1994; Kimberly, 1997; Stone, 1991; Warren, 1993). Instead, they may describe their gender identity in specific terms such as transgender, bigender, or genderqueer, affirming their unique experiences that may transcend a male/female binary understanding of gender (Bockting, 2008; Ekins & King, 2006; Nestle, Wilchins, & Howell, 2002). They may not experience their process of identity affirmation as a "transition," because they never fully embraced the gender role they were assigned at birth or because they actualize their gender identity, role, and expression in a way that does not involve a change from one gender role to another. For example, some youth identifying as genderqueer have always experienced their gender identity and role as such (genderqueer). Greater public visibility and awareness of gender diversity (Feinberg, 1996) has further expanded options for people with gender dysphoria to actualize an identity and find a gender role and expression that are comfortable for them.

Health professionals can assist gender dysphoric individuals with affirming their gender identity, exploring different options for expression of that identity, and making decisions about medical treatment options for alleviating gender dysphoria.

Options for Psychological and Medical Treatment of Gender Dysphoria

For individuals seeking care for gender dysphoria, a variety of therapeutic options can be considered. The number and type of interventions applied and the order in which these take place may differ from person to person (e.g., Bockting, Knudson, & Goldberg, 2006; Bolin, 1994; Rachlin, 1999; Rachlin, Green, & Lombardi, 2008; Rachlin, Hansbury, & Pardo, 2010). Treatment options include the following:

- Changes in gender expression and role (which may involve living part time or full time in another gender role, consistent with one's gender identity);
- Hormone therapy to feminize or masculinize the body;

- Surgery to change primary and/or secondary sex characteristics (e.g., breasts/chest, external and/or internal genitalia, facial features, body contouring);
- Psychotherapy (individual, couple, family, or group) for purposes such as exploring gender identity, role, and expression; addressing the negative impact of gender dysphoria and stigma on mental health; alleviating internalized transphobia; enhancing social and peer support; improving body image; or promoting resilience.

Options for Social Support and Changes in Gender Expression

In addition (or as an alternative) to the psychological- and medical-treatment options described above, other options can be considered to help alleviate gender dysphoria, for example:

- In-person and online peer support resources, groups, or community organizations that provide avenues for social support and advocacy;
- In-person and online support resources for families and friends;
- Voice and communication therapy to help individuals develop verbal and non-verbal communication skills that facilitate comfort with their gender identity;
- Hair removal through electrolysis, laser treatment, or waxing;
- Breast binding or padding, genital tucking or penile prostheses, padding of hips or buttocks;
- Changes in name and gender marker on identity documents.

VI

Assessment and Treatment of Children and Adolescents With Gender Dysphoria

There are a number of differences in the phenomenology, developmental course, and treatment approaches for gender dysphoria in children, adolescents, and adults. In children and adolescents, a rapid and dramatic developmental process (physical, psychological, and sexual) is involved and

there is greater fluidity and variability in outcomes, particularly in prepubertal children. Accordingly, this section of the *SOC* offers specific clinical guidelines for the assessment and treatment of gender dysphoric children and adolescents.

Differences Between Children and Adolescents with Gender Dysphoria

An important difference between gender dysphoric children and adolescents is in the proportion for whom dysphoria persists into adulthood. Gender dysphoria during childhood does not inevitably continue into adulthood.[V] Rather, in follow-up studies of prepubertal children (mainly boys) who were referred to clinics for assessment of gender dysphoria, the dysphoria persisted into adulthood for only 6–23% of children (Cohen-Kettenis, 2001; Zucker & Bradley, 1995). Boys in these studies were more likely to identify as gay in adulthood than as transgender (Green, 1987; Money & Russo, 1979; Zucker & Bradley, 1995; Zuger, 1984). Newer studies, also including girls, showed a 12–27% persistence rate of gender dysphoria into adulthood (Drummond, Bradley, Peterson-Badali, & Zucker, 2008; Wallien & Cohen-Kettenis, 2008).

In contrast, the persistence of gender dysphoria into adulthood appears to be much higher for adolescents. No formal prospective studies exist. However, in a follow-up study of 70 adolescents who were diagnosed with gender dysphoria and given puberty-suppressing hormones, all continued with actual sex reassignment, beginning with feminizing/masculinizing hormone therapy (de Vries, Steensma, Doreleijers, & Cohen-Kettenis, 2010).

Another difference between gender dysphoric children and adolescents is in the sex ratios for each age group. In clinically referred, gender dysphoric children under age 12, the male/female ratio ranges from 6:1 to 3:1 (Zucker, 2004). In clinically referred, gender dysphoric adolescents older than age 12, the male/female ratio is close to 1:1 (Cohen-Kettenis & Pfäfflin, 2003).

As discussed in section IV and by Zucker and Lawrence (2009), formal epidemiologic studies on gender dysphoria—in children, adolescents, and adults—are lacking. Additional research is needed to refine estimates of its prevalence and persistence in different populations worldwide.

V Gender-nonconforming behaviors in children may continue into adulthood, but such behaviors are not necessarily indicative of gender dysphoria and a need for treatment. As described in section III, gender dysphoria is not synonymous with diversity in gender expression.

Phenomenology in Children

Children as young as age two may show features that could indicate gender dysphoria. They may express a wish to be of the other sex and be unhappy about their physical sex characteristics and functions. In addition, they may prefer clothes, toys, and games that are commonly associated with the other sex and prefer playing with other-sex peers. There appears to be heterogeneity in these features: Some children demonstrate extremely gender-nonconforming behavior and wishes, accompanied by persistent and severe discomfort with their primary sex characteristics. In other children, these characteristics are less intense or only partially present (Cohen-Kettenis et al., 2006; Knudson, De Cuypere, & Bockting, 2010a).

It is relatively common for gender dysphoric children to have coexisting internalizing disorders such as anxiety and depression (Cohen-Kettenis, Owen, Kaijser, Bradley, & Zucker, 2003; Wallien, Swaab, & Cohen-Kettenis, 2007; Zucker, Owen, Bradley, & Ameeriar, 2002). The prevalence of autism spectrum disorders seems to be higher in clinically referred, gender dysphoric children than in the general population (de Vries, Noens, Cohen-Kettenis, van Berckelaer-Onnes, & Doreleijers, 2010).

Phenomenology in Adolescents

In most children, gender dysphoria will disappear before, or early in, puberty. However, in some children these feelings will intensify and body aversion will develop or increase as they become adolescents and their secondary sex characteristics develop (Cohen-Kettenis, 2001; Cohen-Kettenis & Pfäfflin, 2003; Drummond et al., 2008; Wallien & Cohen-Kettenis, 2008; Zucker & Bradley, 1995). Data from one study suggest that more extreme gender nonconformity in childhood is associated with persistence of gender dysphoria into late adolescence and early adulthood (Wallien & Cohen-Kettenis, 2008). Yet many adolescents and adults presenting with gender dysphoria do not report a history of childhood gender-nonconforming behaviors (Docter, 1988; Landén, Wålinder, & Lundström, 1998). Therefore, it may come as a surprise to others (parents, other family members, friends, and community members) when a youth's gender dysphoria first becomes evident in adolescence.

Adolescents who experience their primary and/or secondary sex characteristics and their sex assigned at birth as inconsistent with their gender identity may be intensely distressed about it. Many, but not all, gender dysphoric adolescents have a strong wish for hormones and surgery. Increasing numbers of adolescents have already started living in their desired gender role upon entering high school (Cohen-Kettenis & Pfäfflin, 2003).

Among adolescents who are referred to gender identity clinics, the number considered eligible for early medical treatment—starting with GnRH analogues to suppress puberty in the first Tanner stages—differs among countries and centers. Not all clinics offer puberty suppression. If such treatment is offered, the pubertal stage at which adolescents are allowed to start varies from Tanner stage 2 to stage 4 (Delemarre-van de Waal & Cohen-Kettenis, 2006; Zucker et al., 2012). The percentages of treated adolescents are likely influenced by the organization of health care, insurance aspects, cultural differences, opinions of health professionals, and diagnostic procedures offered in different settings.

Inexperienced clinicians may mistake indications of gender dysphoria for delusions. Phenomenologically, there is a qualitative difference between the presentation of gender dysphoria and the presentation of delusions or other psychotic symptoms. The vast majority of children and adolescents with gender dysphoria are not suffering from underlying severe psychiatric illness such as psychotic disorders (Steensma, Biemond, de Boer, & Cohen-Kettenis, published online ahead of print January 7, 2011).

It is more common for adolescents with gender dysphoria to have coexisting internalizing disorders such as anxiety and depression, and/or externalizing disorders such as oppositional defiant disorder (de Vries et al., 2010). As in children, there seems to be a higher prevalence of autistic spectrum disorders in clinically referred, gender dysphoric adolescents than in the general adolescent population (de Vries et al., 2010).

Competency of Mental Health Professionals Working with Children or Adolescents with Gender Dysphoria

The following are recommended minimum credentials for mental health professionals who assess, refer, and offer therapy to children and adolescents presenting with gender dysphoria:

1. Meet the competency requirements for mental health professionals working with adults, as outlined in section VII;

2. Trained in childhood and adolescent developmental psychopathology;

3. Competent in diagnosing and treating the ordinary problems of children and adolescents.

Roles of Mental Health Professionals Working with Children and Adolescents with Gender Dysphoria

The roles of mental health professionals working with gender dysphoric children and adolescents may include the following:

1. Directly assess gender dysphoria in children and adolescents (see general guidelines for assessment, below).

2. Provide family counseling and supportive psychotherapy to assist children and adolescents with exploring their gender identity, alleviating distress related to their gender dysphoria, and ameliorating any other psychosocial difficulties.

3. Assess and treat any coexisting mental health concerns of children or adolescents (or refer to another mental health professional for treatment). Such concerns should be addressed as part of the overall treatment plan.

4. Refer adolescents for additional physical interventions (such as puberty-suppressing hormones) to alleviate gender dysphoria. The referral should include documentation of an assessment of gender dysphoria and mental health, the adolescent's eligibility for physical interventions (outlined below), the mental health professional's relevant expertise, and any other information pertinent to the youth's health and referral for specific treatments.

5. Educate and advocate on behalf of gender dysphoric children, adolescents, and their families in their community (e.g., day care centers, schools, camps, other organizations). This is particularly important in light of evidence that children and adolescents who do not conform to socially prescribed gender norms may experience harassment in school (Grossman, D'Augelli, & Salter, 2006; Grossman, D'Augelli, Howell, & Hubbard, 2006; Sausa, 2005), putting them at risk for social isolation, depression, and other negative sequelae (Nuttbrock et al., 2010).

6. Provide children, youth, and their families with information and referral for peer support, such as support groups for parents of gender-nonconforming and transgender children (Gold & MacNish, 2011; Pleak, 1999; Rosenberg, 2002).

Assessment and psychosocial interventions for children and adolescents are often provided within a multidisciplinary gender identity specialty service. If such a multidisciplinary service is not available, a mental health professional should provide consultation and liaison arrangements with a pediatric endocrinologist for the purpose of assessment, education, and involvement in any decisions about physical interventions.

Psychological Assessment of Children and Adolescents

When assessing children and adolescents who present with gender dysphoria, mental health professionals should broadly conform to the following guidelines:

1. Mental health professionals should not dismiss or express a negative attitude towards nonconforming gender identities or indications of gender dysphoria. Rather, they should acknowledge the presenting concerns of children, adolescents, and their families; offer a thorough assessment for gender dysphoria and any coexisting mental health concerns; and educate clients and their families about therapeutic options, if needed. Acceptance, and alleviation of secrecy, can bring considerable relief to gender dysphoric children/adolescents and their families.

2. Assessment of gender dysphoria and mental health should explore the nature and characteristics of a child's or adolescent's gender identity. A psychodiagnostic and psychiatric assessment—covering the areas of emotional functioning, peer and other social relationships, and intellectual functioning/school achievement—should be performed. Assessment should include an evaluation of the strengths and weaknesses of family functioning. Emotional and behavioral problems are relatively common, and unresolved issues in a child's or youth's environment may be present (de Vries, Doreleijers, Steensma, & Cohen-Kettenis, 2011; Di Ceglie & Thümmel, 2006; Wallien et al., 2007).

3. For adolescents, the assessment phase should also be used to inform youth and their families about the possibilities and limitations of different treatments. This is necessary for informed consent, but also important for assessment. The way that adolescents respond to information about the reality of sex reassignment can be diagnostically informative. Correct information may alter a youth's desire for certain treatment, if the desire was based on unrealistic expectations of its possibilities.

Psychological and Social Interventions for Children and Adolescents

When supporting and treating children and adolescents with gender dysphoria, health professionals should broadly conform to the following guidelines:

1. Mental health professionals should help families to have an accepting and nurturing response to the concerns of their gender dysphoric child or adolescent. Families play an important role in the psychological health and well-being of youth (Brill & Pepper, 2008; Lev, 2004). This also applies to peers and mentors from the community, who can be another source of social support.

2. Psychotherapy should focus on reducing a child's or adolescent's distress related to the gender dysphoria and on ameliorating any other psychosocial difficulties. For youth pursuing sex reassignment, psychotherapy may focus on supporting them before, during, and after reassignment. Formal evaluations of different psychotherapeutic approaches for this situation have not been published, but several counseling methods have been described (Cohen-Kettenis, 2006; de Vries, Cohen-Kettenis, & Delemarre-van de Waal, 2006; Di Ceglie & Thümmel, 2006; Hill, Menvielle, Sica, & Johnson, 2010; Malpas, in press; Menvielle & Tuerk, 2002; Rosenberg, 2002; Vanderburgh, 2009; Zucker, 2006).

   Treatment aimed at trying to change a person's gender identity and expression to become more congruent with sex assigned at birth has been attempted in the past without success (Gelder & Marks, 1969; Greenson, 1964), particularly in the long term (Cohen-Kettenis & Kuiper, 1984; Pauly, 1965). Such treatment is no longer considered ethical.

3. Families should be supported in managing uncertainty and anxiety about their child's or adolescent's psychosexual outcomes and in helping youth to develop a positive self-concept.

4. Mental health professionals should not impose a binary view of gender. They should give ample room for clients to explore different options for gender expression. Hormonal or surgical interventions are appropriate for some adolescents, but not for others.

5. Clients and their families should be supported in making difficult decisions regarding the extent to which clients are allowed to express a gender role that is consistent with their gender identity, as well as the timing of changes in gender role and possible social transition. For example, a client might attend school while undergoing social transition only partly (e.g., by wearing clothing and having a hairstyle that reflects gender identity) or completely (e.g., by also using a name and pronouns congruent with gender identity). Difficult issues include whether and when to inform other people of the client's situation, and how others in their lives might respond.

6. Health professionals should support clients and their families as educators and advocates in their interactions with community members and authorities such as teachers, school boards, and courts.

7. Mental health professionals should strive to maintain a therapeutic relationship with gender-nonconforming children/adolescents and their families throughout any subsequent social changes or physical interventions. This ensures that decisions about gender expression and the treatment of gender dysphoria are thoughtfully and recurrently considered. The same reasoning applies if a child or adolescent has already socially changed gender role prior to being seen by a mental health professional.

Social Transition in Early Childhood

Some children state that they want to make a social transition to a different gender role long before puberty. For some children, this may reflect an expression of their gender identity. For others, this could be motivated by other forces. Families vary in the extent to which they allow their young children to make a social transition to another gender role. Social transitions in early childhood do occur within some families with early success. This is a controversial issue, and divergent views are held by health professionals. The current evidence base is insufficient to predict the long-term outcomes of completing a gender role transition during early childhood. Outcomes research with children who completed early social transitions would greatly inform future clinical recommendations.

Mental health professionals can help families to make decisions regarding the timing and process of any gender role changes for their young children. They should provide information and help parents to weigh the potential benefits and challenges of particular choices. Relevant in this respect are the previously described relatively low persistence rates of childhood gender dysphoria (Drummond et al., 2008; Wallien & Cohen-Kettenis, 2008). A change back to the original gender role can be highly distressing and even result in postponement of this second social transition on the child's part (Steensma & Cohen-Kettenis, 2011). For reasons such as these, parents may want to present this role change as an exploration of living in another gender role rather than an irreversible situation. Mental health professionals can assist parents in identifying potential in-between solutions or compromises (e.g., only when on vacation). It is also important that parents explicitly let the child know that there is a way back.

Regardless of a family's decisions regarding transition (timing, extent), professionals should counsel and support them as they work through the options and implications. If parents do not allow their young child to make a gender-role transition, they may need counseling to assist them with meeting their child's needs in a sensitive and nurturing way, ensuring that the child has ample possibilities to explore gender feelings and behavior in a safe environment. If parents do allow their young child to make a gender role transition, they may need counseling to facilitate a positive experience for their child. For example, they may need support in using correct pronouns, maintaining a safe and supportive environment for their transitioning child (e.g., in school, peer group settings), and communicating with other people in their child's life. In either case, as a child nears puberty, further assessment may be needed as options for physical interventions become relevant.

Physical Interventions for Adolescents

Before any physical interventions are considered for adolescents, extensive exploration of psychological, family, and social issues should be undertaken, as outlined above. The duration of this exploration may vary considerably depending on the complexity of the situation.

Physical interventions should be addressed in the context of adolescent development. Some identity beliefs in adolescents may become firmly held and strongly expressed, giving a false impression of irreversibility. An adolescent's shift towards gender conformity can occur primarily to please the parents and may not persist or reflect a permanent change in gender dysphoria (Hembree et al., 2009; Steensma et al., published online ahead of print January 7, 2011).

Physical interventions for adolescents fall into three categories or stages (Hembree et al., 2009):

1. *Fully reversible interventions*. These involve the use of GnRH analogues to suppress estrogen or testosterone production and consequently delay the physical changes of puberty. Alternative treatment options include progestins (most commonly medroxyprogesterone) or other medications (such as spironolactone) that decrease the effects of androgens secreted by the testicles of adolescents who are not receiving GnRH analogues. Continuous oral contraceptives (or depot medroxyprogesterone) may be used to suppress menses.

2. *Partially reversible interventions*. These include hormone therapy to masculinize or feminize the body. Some hormone-induced changes may need reconstructive surgery to reverse the effect (e.g., gynaecomastia caused by estrogens), while other changes are not reversible (e.g., deepening of the voice caused by testosterone).

3. *Irreversible interventions*. These are surgical procedures.

A staged process is recommended to keep options open through the first two stages. Moving from one stage to another should not occur until there has been adequate time for adolescents and their parents to assimilate fully the effects of earlier interventions.

Fully Reversible Interventions

Adolescents may be eligible for puberty-suppressing hormones as soon as pubertal changes have begun. In order for adolescents and their parents to make an informed decision about pubertal delay, it is recommended that adolescents experience the onset of puberty to at least Tanner Stage 2. Some children may arrive at this stage at very young ages (e.g., 9 years of age). Studies

evaluating this approach have only included children who were at least 12 years of age (Cohen-Kettenis, Schagen, Steensma, de Vries, & Delemarre-van de Waal, 2011; de Vries, Steensma et al., 2010; Delemarre-van de Waal, van Weissenbruch, & Cohen Kettenis, 2004; Delemarre-van de Waal & Cohen-Kettenis, 2006).

Two goals justify intervention with puberty-suppressing hormones: (i) their use gives adolescents more time to explore their gender nonconformity and other developmental issues; and (ii) their use may facilitate transition by preventing the development of sex characteristics that are difficult or impossible to reverse if adolescents continue on to pursue sex reassignment.

Puberty suppression may continue for a few years, at which time a decision is made to either discontinue all hormone therapy or transition to a feminizing/masculinizing hormone regimen. Pubertal suppression does not inevitably lead to social transition or to sex reassignment.

Criteria for Puberty-Suppressing Hormones

In order for adolescents to receive puberty-suppressing hormones, the following minimum criteria must be met:

1. The adolescent has demonstrated a long-lasting and intense pattern of gender nonconformity or gender dysphoria (whether suppressed or expressed);

2. Gender dysphoria emerged or worsened with the onset of puberty;

3. Any coexisting psychological, medical, or social problems that could interfere with treatment (e.g., that may compromise treatment adherence) have been addressed, such that the adolescent's situation and functioning are stable enough to start treatment;

4. The adolescent has given informed consent and, particularly when the adolescent has not reached the age of medical consent, the parents or other caretakers or guardians have consented to the treatment and are involved in supporting the adolescent throughout the treatment process.

Regimens, Monitoring, and Risks for Puberty Suppression

For puberty suppression, adolescents with male genitalia should be treated with GnRH analogues, which stop luteinizing hormone secretion and therefore testosterone secretion. Alternatively, they may be treated with progestins (such as medroxyprogesterone) or with other medications that block testosterone secretion and/or neutralize testosterone action. Adolescents with female genitalia should be treated with GnRH analogues, which stop the production of estrogens and

progesterone. Alternatively, they may be treated with progestins (such as medroxyprogesterone). Continuous oral contraceptives (or depot medroxyprogesterone) may be used to suppress menses. In both groups of adolescents, use of GnRH analogues is the preferred treatment (Hembree et al., 2009), but their high cost is prohibitive for some patients.

During pubertal suppression, an adolescent's physical development should be carefully monitored—preferably by a pediatric endocrinologist—so that any necessary interventions can occur (e.g., to establish an adequate gender appropriate height, to improve iatrogenic low bone mineral density) (Hembree et al., 2009).

Early use of puberty-suppressing hormones may avert negative social and emotional consequences of gender dysphoria more effectively than their later use would. Intervention in early adolescence should be managed with pediatric endocrinological advice, when available. Adolescents with male genitalia who start GnRH analogues early in puberty should be informed that this could result in insufficient penile tissue for penile inversion vaginoplasty techniques (alternative techniques, such as the use of a skin graft or colon tissue, are available).

Neither puberty suppression nor allowing puberty to occur is a neutral act. On the one hand, functioning in later life can be compromised by the development of irreversible secondary sex characteristics during puberty and by years spent experiencing intense gender dysphoria. On the other hand, there are concerns about negative physical side effects of GnRH analogue use (e.g., on bone development and height). Although the very first results of this approach (as assessed for adolescents followed over 10 years) are promising (Cohen-Kettenis et al., 2011; Delemarre-van de Waal & Cohen-Kettenis, 2006), the long-term effects can only be determined when the earliest-treated patients reach the appropriate age.

Partially Reversible Interventions

Adolescents may be eligible to begin feminizing/masculinizing hormone therapy, preferably with parental consent. In many countries, 16-year-olds are legal adults for medical decision-making and do not require parental consent. Ideally, treatment decisions should be made among the adolescent, the family, and the treatment team.

Regimens for hormone therapy in gender dysphoric adolescents differ substantially from those used in adults (Hembree et al., 2009). The hormone regimens for youth are adapted to account for the somatic, emotional, and mental development that occurs throughout adolescence (Hembree et al., 2009).

Irreversible Interventions

Genital surgery should not be carried out until (i) patients reach the legal age of majority to give consent for medical procedures in a given country, and (ii) patients have lived continuously for at least 12 months in the gender role that is congruent with their gender identity. The age threshold should be seen as a minimum criterion and not an indication in and of itself for active intervention.

Chest surgery in FtM patients could be carried out earlier, preferably after ample time of living in the desired gender role and after one year of testosterone treatment. The intent of this suggested sequence is to give adolescents sufficient opportunity to experience and socially adjust in a more masculine gender role, before undergoing irreversible surgery. However, different approaches may be more suitable, depending on an adolescent's specific clinical situation and goals for gender identity expression.

Risks of Withholding Medical Treatment for Adolescents

Refusing timely medical interventions for adolescents might prolong gender dysphoria and contribute to an appearance that could provoke abuse and stigmatization. As the level of gender-related abuse is strongly associated with the degree of psychiatric distress during adolescence (Nuttbrock et al., 2010), withholding puberty suppression and subsequent feminizing or masculinizing hormone therapy is not a neutral option for adolescents.

VII
Mental Health

Transsexual, transgender, and gender-nonconforming people might seek the assistance of a mental health professional for any number of reasons. Regardless of a person's reason for seeking care, mental health professionals should have familiarity with gender nonconformity, act with appropriate cultural competence, and exhibit sensitivity in providing care.

This section of the *SOC* focuses on the role of mental health professionals in the care of adults seeking help for gender dysphoria and related concerns. Professionals working with gender dysphoric children, adolescents, and their families should consult section VI.

Competency of Mental Health Professionals Working with Adults Who Present with Gender Dysphoria

The training of mental health professionals competent to work with gender dysphoric adults rests upon basic general clinical competence in the assessment, diagnosis, and treatment of mental health concerns. Clinical training may occur within any discipline that prepares mental health professionals for clinical practice, such as psychology, psychiatry, social work, mental health counseling, marriage and family therapy, nursing, or family medicine with specific training in behavioral health and counseling. The following are recommended minimum credentials for mental health professionals who work with adults presenting with gender dysphoria:

1. A master's degree or its equivalent in a clinical behavioral science field. This degree, or a more advanced one, should be granted by an institution accredited by the appropriate national or regional accrediting board. The mental health professional should have documented credentials from a relevant licensing board or equivalent for that country.

2. Competence in using the *Diagnostic Statistical Manual of Mental Disorders* and/or the *International Classification of Diseases* for diagnostic purposes.

3. Ability to recognize and diagnose coexisting mental health concerns and to distinguish these from gender dysphoria.

4. Documented supervised training and competence in psychotherapy or counseling.

5. Knowledgeable about gender-nonconforming identities and expressions, and the assessment and treatment of gender dysphoria.

6. Continuing education in the assessment and treatment of gender dysphoria. This may include attending relevant professional meetings, workshops, or seminars; obtaining supervision from a mental health professional with relevant experience; or participating in research related to gender nonconformity and gender dysphoria.

In addition to the minimum credentials above, it is recommended that mental health professionals develop and maintain cultural competence to facilitate their work with transsexual, transgender, and gender-nonconforming clients. This may involve, for example, becoming knowledgeable about current community, advocacy, and public policy issues relevant to these clients and their families. Additionally, knowledge about sexuality, sexual health concerns, and the assessment and treatment of sexual disorders is preferred.

Mental health professionals who are new to the field (irrespective of their level of training and other experience) should work under the supervision of a mental health professional with established competence in the assessment and treatment of gender dysphoria.

Tasks of Mental Health Professionals Working with Adults Who Present with Gender Dysphoria

Mental health professionals may serve transsexual, transgender, and gender-nonconforming individuals and their families in many ways, depending on a client's needs. For example, mental health professionals may serve as a psychotherapist, counselor, or family therapist, or as a diagnostician/assessor, advocate, or educator.

Mental health professionals should determine a client's reasons for seeking professional assistance. For example, a client may be presenting for any combination of the following health care services: psychotherapeutic assistance to explore gender identity and expression or to facilitate a coming-out process; assessment and referral for feminizing/masculinizing medical interventions; psychological support for family members (partners, children, extended family); psychotherapy unrelated to gender concerns; or other professional services.

Below are general guidelines for common tasks that mental health professionals may fulfill in working with adults who present with gender dysphoria.

Tasks Related to Assessment and Referral

1. Assess Gender Dysphoria

Mental health professionals assess clients' gender dysphoria in the context of an evaluation of their psychosocial adjustment (Bockting et al., 2006; Lev, 2004, 2009). The evaluation includes, at a minimum, assessment of gender identity and gender dysphoria, history and development of gender dysphoric feelings, the impact of stigma attached to gender nonconformity on mental health, and the availability of support from family, friends, and peers (for example, in-person or online contact with other transsexual, transgender, or gender-nonconforming individuals or groups). The evaluation may result in no diagnosis, in a formal diagnosis related to gender dysphoria, and/or in other diagnoses that describe aspects of the client's health and psychosocial adjustment. The role

of mental health professionals includes making reasonably sure that the gender dysphoria is not secondary to, or better accounted for, by other diagnoses.

Mental health professionals with the competencies described above (hereafter called "a qualified mental health professional") are best prepared to conduct this assessment of gender dysphoria. However, this task may instead be conducted by another type of health professional who has appropriate training in behavioral health and is competent in the assessment of gender dysphoria, particularly when functioning as part of a multidisciplinary specialty team that provides access to feminizing/masculinizing hormone therapy. This professional may be the prescribing hormone therapy provider or a member of that provider's health care team.

2. Provide Information Regarding Options for Gender Identity and Expression and Possible Medical Interventions

An important task of mental health professionals is to educate clients regarding the diversity of gender identities and expressions and the various options available to alleviate gender dysphoria. Mental health professionals then may facilitate a process (or refer elsewhere) in which clients explore these various options, with the goals of finding a comfortable gender role and expression and becoming prepared to make a fully informed decision about available medical interventions, if needed. This process may include referral for individual, family, and group therapy and/or to community resources and avenues for peer support. The professional and the client discuss the implications, both short- and long-term, of any changes in gender role and use of medical interventions. These implications can be psychological, social, physical, sexual, occupational, financial, and legal (Bockting et al., 2006; Lev, 2004).

This task is also best conducted by a qualified mental health professional, but may be conducted by another health professional with appropriate training in behavioral health and with sufficient knowledge about gender-nonconforming identities and expressions and about possible medical interventions for gender dysphoria, particularly when functioning as part of a multidisciplinary specialty team that provides access to feminizing/masculinizing hormone therapy.

3. Assess, Diagnose, and Discuss Treatment Options for Coexisting Mental Health Concerns

Clients presenting with gender dysphoria may struggle with a range of mental health concerns (Gómez-Gil, Trilla, Salamero, Godás, & Valdés, 2009; Murad et al., 2010) whether related or unrelated to what is often a long history of gender dysphoria and/or chronic minority stress. Possible concerns include anxiety, depression, self-harm, a history of abuse and neglect, compulsivity, substance abuse, sexual concerns, personality disorders, eating disorders, psychotic disorders, and autistic spectrum disorders (Bockting et al., 2006; Nuttbrock et al., 2010; Robinow, 2009). Mental health professionals should screen for these and other mental health concerns and incorporate

the identified concerns into the overall treatment plan. These concerns can be significant sources of distress and, if left untreated, can complicate the process of gender identity exploration and resolution of gender dysphoria (Bockting et al., 2006; Fraser, 2009a; Lev, 2009). Addressing these concerns can greatly facilitate the resolution of gender dysphoria, possible changes in gender role, the making of informed decisions about medical interventions, and improvements in quality of life.

Some clients may benefit from psychotropic medications to alleviate symptoms or treat coexisting mental health concerns. Mental health professionals are expected to recognize this and either provide pharmacotherapy or refer to a colleague who is qualified to do so. The presence of coexisting mental health concerns does not necessarily preclude possible changes in gender role or access to feminizing/masculinizing hormones or surgery; rather, these concerns need to be optimally managed prior to, or concurrent with, treatment of gender dysphoria. In addition, clients should be assessed for their ability to provide educated and informed consent for medical treatments.

Qualified mental health professionals are specifically trained to assess, diagnose, and treat (or refer to treatment for) these coexisting mental health concerns. Other health professionals with appropriate training in behavioral health, particularly when functioning as part of a multidisciplinary specialty team providing access to feminizing/masculinizing hormone therapy, may also screen for mental health concerns and, if indicated, provide referral for comprehensive assessment and treatment by a qualified mental health professional.

4. If Applicable, Assess Eligibility, Prepare, and Refer for Hormone Therapy

The *SOC* provide criteria to guide decisions regarding feminizing/masculinizing hormone therapy (outlined in section VIII and Appendix C). Mental health professionals can help clients who are considering hormone therapy to be both psychologically prepared (e.g., client has made a fully informed decision with clear and realistic expectations; is ready to receive the service in line with the overall treatment plan; has included family and community as appropriate) and practically prepared (e.g., has been evaluated by a physician to rule out or address medical contraindications to hormone use; has considered the psychosocial implications). If clients are of childbearing age, reproductive options (section IX) should be explored before initiating hormone therapy.

It is important for mental health professionals to recognize that decisions about hormones are first and foremost a client's decisions—as are all decisions regarding healthcare. However, mental health professionals have a responsibility to encourage, guide, and assist clients with making fully informed decisions and becoming adequately prepared. To best support their clients' decisions, mental health professionals need to have functioning working relationships with their clients and sufficient information about them. Clients should receive prompt and attentive evaluation, with the goal of alleviating their gender dysphoria and providing them with appropriate medical services.

Referral for feminizing/masculinizing hormone therapy

People may approach a specialized provider in any discipline to pursue feminizing/masculinizing hormone therapy. However, transgender health care is an interdisciplinary field, and coordination of care and referral among a client's overall care team is recommended.

Hormone therapy can be initiated with a referral from a qualified mental health professional. Alternatively, a health professional who is appropriately trained in behavioral health and competent in the assessment of gender dysphoria may assess eligibility, prepare, and refer the patient for hormone therapy, particularly in the absence of significant coexisting mental health concerns and when working in the context of a multidisciplinary specialty team. The referring health professional should provide documentation—in the chart and/or referral letter—of the patient's personal and treatment history, progress, and eligibility. Health professionals who recommend hormone therapy share the ethical and legal responsibility for that decision with the physician who provides the service.

The recommended content of the referral letter for feminizing/masculinizing hormone therapy is as follows:

1. The client's general identifying characteristics;

2. Results of the client's psychosocial assessment, including any diagnoses;

3. The duration of the referring health professional's relationship with the client, including the type of evaluation and therapy or counseling to date;

4. An explanation that the criteria for hormone therapy have been met, and a brief description of the clinical rationale for supporting the client's request for hormone therapy;

5. A statement that informed consent has been obtained from the patient;

6. A statement that the referring health professional is available for coordination of care and welcomes a phone call to establish this.

For providers working within a multidisciplinary specialty team, a letter may not be necessary; rather, the assessment and recommendation can be documented in the patient's chart.

5. If Applicable, Assess Eligibility, Prepare, and Refer for Surgery

The *SOC* also provide criteria to guide decisions regarding breast/chest surgery and genital surgery (outlined in section XI and Appendix C). Mental health professionals can help clients who are

considering surgery to be both psychologically prepared (e.g., has made a fully informed decision with clear and realistic expectations; is ready to receive the service in line with the overall treatment plan; has included family and community as appropriate) and practically prepared (e.g., has made an informed choice about a surgeon to perform the procedure; has arranged aftercare). If clients are of childbearing age, reproductive options (section IX) should be explored before undergoing genital surgery.

The *SOC* do not state criteria for other surgical procedures, such as feminizing or masculinizing facial surgery; however, mental health professionals can play an important role in helping their clients to make fully informed decisions about the timing and implications of such procedures in the context of the overall coming-out or transition process.

It is important for mental health professionals to recognize that decisions about surgery are first and foremost a client's decisions—as are all decisions regarding healthcare. However, mental health professionals have a responsibility to encourage, guide, and assist clients with making fully informed decisions and becoming adequately prepared. To best support their clients' decisions, mental health professionals need to have functioning working relationships with their clients and sufficient information about them. Clients should receive prompt and attentive evaluation, with the goal of alleviating their gender dysphoria and providing them with appropriate medical services.

Referral for surgery

Surgical treatments for gender dysphoria can be initiated by a referral (one or two, depending on the type of surgery) from a qualified mental health professional. The mental health professional provides documentation—in the chart and/or referral letter—of the patient's personal and treatment history, progress, and eligibility. Mental health professionals who recommend surgery share the ethical and legal responsibility for that decision with the surgeon.

- One referral from a qualified mental health professional is needed for breast/chest surgery (e.g., mastectomy, chest reconstruction, or augmentation mammoplasty).

- Two referrals—from qualified mental health professionals who have independently assessed the patient—are needed for genital surgery (i.e., hysterectomy/salpingo-oophorectomy, orchiectomy, genital reconstructive surgeries). If the first referral is from the patient's psychotherapist, the second referral should be from a person who has only had an evaluative role with the patient. Two separate letters, or one letter signed by both (e.g., if practicing within the same clinic) may be sent. Each referral letter, however, is expected to cover the same topics in the areas outlined below.

The recommended content of the referral letters for surgery is as follows:

1. The client's general identifying characteristics;
2. Results of the client's psychosocial assessment, including any diagnoses;
3. The duration of the mental health professional's relationship with the client, including the type of evaluation and therapy or counseling to date;
4. An explanation that the criteria for surgery have been met, and a brief description of the clinical rationale for supporting the patient's request for surgery;
5. A statement about the fact that informed consent has been obtained from the patient;
6. A statement that the mental health professional is available for coordination of care and welcomes a phone call to establish this.

For providers working within a multidisciplinary specialty team, a letter may not be necessary, rather, the assessment and recommendation can be documented in the patient's chart.

Relationship of Mental Health Professionals with Hormone-Prescribing Physicians, Surgeons, and Other Health Professionals

It is ideal for mental health professionals to perform their work and periodically discuss progress and obtain peer consultation from other professionals (both in mental health care and other health disciplines) who are competent in the assessment and treatment of gender dysphoria. The relationship among professionals involved in a client's health care should remain collaborative, with coordination and clinical dialogue taking place as needed. Open and consistent communication may be necessary for consultation, referral, and management of postoperative concerns.

Tasks Related to Psychotherapy

1. Psychotherapy Is Not an Absolute Requirement for Hormone Therapy and Surgery

A mental health screening and/or assessment as outlined above is needed for referral to hormonal and surgical treatments for gender dysphoria. In contrast, psychotherapy—although highly recommended—is not a requirement.

The *SOC* do not recommend a minimum number of psychotherapy sessions prior to hormone therapy or surgery. The reasons for this are multifaceted (Lev, 2009). First, a minimum number of sessions tends to be construed as a hurdle, which discourages the genuine opportunity for personal growth. Second, mental health professionals can offer important support to clients throughout all phases of exploration of gender identity, gender expression, and possible transition—not just prior to any possible medical interventions. Third, clients and their psychotherapists differ in their abilities to attain similar goals in a specified time period.

2. Goals of Psychotherapy for Adults with Gender Concerns

The general goal of psychotherapy is to find ways to maximize a person's overall psychological well-being, quality of life, and self-fulfillment. Psychotherapy is not intended to alter a person's gender identity; rather, psychotherapy can help an individual to explore gender concerns and find ways to alleviate gender dysphoria, if present (Bockting et al., 2006; Bockting & Coleman, 2007; Fraser, 2009a; Lev, 2004). Typically, the overarching treatment goal is to help transsexual, transgender, and gender-nonconforming individuals achieve long-term comfort in their gender identity expression, with realistic chances for success in their relationships, education, and work. For additional details, see Fraser (Fraser, 2009c).

Therapy may consist of individual, couple, family, or group psychotherapy, the latter being particularly important to foster peer support.

3. Psychotherapy for Transsexual, Transgender, and Gender-Nonconforming Clients, Including Counseling and Support for Changes in Gender Role

Finding a comfortable gender role is, first and foremost, a psychosocial process. Psychotherapy can be invaluable in assisting transsexual, transgender, and gender-nonconforming individuals with all of the following: (i) clarifying and exploring gender identity and role, (ii) addressing the impact of stigma and minority stress on one's mental health and human development, and (iii) facilitating a coming-out process (Bockting & Coleman, 2007; Devor, 2004; Lev, 2004), which for some individuals may include changes in gender role expression and the use of feminizing/masculinizing medical interventions.

Mental health professionals can provide support and promote interpersonal skills and resilience in individuals and their families as they navigate a world that often is ill-prepared to accommodate and respect transgender, transsexual, and gender-nonconforming people. Psychotherapy can also aid in alleviating any coexisting mental health concerns (e.g., anxiety, depression) identified during screening and assessment.

For transsexual, transgender, and gender-nonconforming individuals who plan to change gender roles permanently and make a social gender role transition, mental health professionals can facilitate the development of an individualized plan with specific goals and timelines. While the experience of changing one's gender role differs from person to person, the social aspects of the experience are usually challenging—often more so than the physical aspects. Because changing gender role can have profound personal and social consequences, the decision to do so should include an awareness of what the familial, interpersonal, educational, vocational, economic, and legal challenges are likely to be, so that people can function successfully in their gender role.

Many transsexual, transgender, and gender-nonconforming people will present for care without ever having been related to, or accepted in, the gender role that is most congruent with their gender identity. Mental health professionals can help these clients to explore and anticipate the implications of changes in gender role, and to pace the process of implementing these changes. Psychotherapy can provide a space for clients to begin to express themselves in ways that are congruent with their gender identity and, for some clients, overcome fears about changes in gender expression. Calculated risks can be taken outside of therapy to gain experience and build confidence in the new role. Assistance with coming out to family and community (friends, school, workplace) can be provided.

Other transsexual, transgender, and gender-nonconforming individuals will present for care already having acquired experience (minimal, moderate, or extensive) living in a gender role that differs from that associated with their birth-assigned sex. Mental health professionals can help these clients to identify and work through potential challenges and foster optimal adjustment as they continue to express changes in their gender role.

4. Family Therapy or Support for Family Members

Decisions about changes in gender role and medical interventions for gender dysphoria have implications for, not only clients, but also their families (Emerson & Rosenfeld, 1996; Fraser, 2009a; Lev, 2004). Mental health professionals can assist clients with making thoughtful decisions about communicating with family members and others about their gender identity and treatment decisions. Family therapy may include work with spouses or partners, as well as with children and other members of a client's extended family.

Clients may also request assistance with their relationships and sexual health. For example, they may want to explore their sexuality and intimacy-related concerns.

Family therapy might be offered as part of the client's individual therapy and, if clinically appropriate, by the same provider. Alternatively, referrals can be made to other therapists with relevant expertise

for working with family members or to sources of peer support (e.g., in-person or offline support networks of partners or families).

5. Follow-Up Care Throughout Life

Mental health professionals may work with clients and their families at many stages of their lives. Psychotherapy may be helpful at different times and for various issues throughout the life cycle.

6. E-Therapy, Online Counseling, or Distance Counseling

Online or e-therapy has been shown to be particularly useful for people who have difficulty accessing competent in-person psychotherapeutic treatment and who may experience isolation and stigma (Derrig-Palumbo & Zeine, 2005; Fenichel et al., 2004; Fraser, 2009b). By extrapolation, e-therapy may be a useful modality for psychotherapy with transsexual, transgender, and gender-nonconforming people. E-therapy offers opportunities for potentially enhanced, expanded, creative, and tailored delivery of services; however, as a developing modality it may also carry unexpected risk. Telemedicine guidelines are clear in some disciplines in some parts of the United States (Fraser, 2009b; Maheu, Pulier, Wilhelm, McMenamin, & Brown-Connolly, 2005) but not all; the international situation is even less well-defined (Maheu et al., 2005). Until sufficient evidence-based data on this use of e-therapy is available, caution in its use is advised.

Mental health professionals engaging in e-therapy are advised to stay current with their particular licensing board, professional association, and country's regulations, as well as the most recent literature pertaining to this rapidly evolving medium. A more thorough description of the potential uses, processes, and ethical concerns related to e-therapy has been published (Fraser, 2009b).

Other Tasks of Mental Health Professionals

1. Educate and Advocate on Behalf of Clients Within Their Community (Schools, Workplaces, Other Organizations) and Assist Clients with Making Changes in Identity Documents

Transsexual, transgender, and gender-nonconforming people may face challenges in their professional, educational, and other types of settings as they actualize their gender identity and expression (Lev, 2004, 2009). Mental health professionals can play an important role by educating people in these settings regarding gender nonconformity and by advocating on behalf of their clients (Currah, Juang, & Minter, 2006; Currah & Minter, 2000). This role may involve consultation

with school counselors, teachers, and administrators, human resources staff, personnel managers and employers, and representatives from other organizations and institutions. In addition, health providers may be called upon to support changes in a client's name and/or gender marker on identity documents such as passports, driver's licenses, birth certificates, and diplomas.

2. Provide Information and Referral for Peer Support

For some transsexual, transgender, and gender-nonconforming people, an experience in peer support groups may be more instructive regarding options for gender expression than anything individual psychotherapy could offer (Rachlin, 2002). Both experiences are potentially valuable, and all people exploring gender issues should be encouraged to participate in community activities, if possible. Resources for peer support and information should be made available.

Culture and Its Ramifications for Assessment and Psychotherapy

Health professionals work in enormously different environments across the world. Forms of distress that cause people to seek professional assistance in any culture are understood and classified by people in terms that are products of their own cultures (Frank & Frank, 1993). Cultural settings also largely determine how such conditions are understood by mental health professionals. Cultural differences related to gender identity and expression can affect patients, mental health professionals, and accepted psychotherapy practice. WPATH recognizes that the *SOC* have grown out of a Western tradition and may need to be adapted depending on the cultural context.

Ethical Guidelines Related to Mental Health Care

Mental health professionals need to be certified or licensed to practice in a given country according to that country's professional regulations (Fraser, 2009b; Pope & Vasquez, 2011). Professionals must adhere to the ethical codes of their professional licensing or certifying organizations in all of their work with transsexual, transgender, and gender-nonconforming clients.

Treatment aimed at trying to change a person's gender identity and lived gender expression to become more congruent with sex assigned at birth has been attempted in the past (Gelder & Marks, 1969; Greenson, 1964), yet without success, particularly in the long-term (Cohen-Kettenis & Kuiper, 1984; Pauly, 1965). Such treatment is no longer considered ethical.

If mental health professionals are uncomfortable with, or inexperienced in, working with transsexual, transgender, and gender-nonconforming individuals and their families, they should refer clients to a competent provider or, at minimum, consult with an expert peer. If no local practitioners are available, consultation may be done via telehealth methods, assuming local requirements for distance consultation are met.

Issues of Access to Care

Qualified mental health professionals are not universally available; thus, access to quality care might be limited. WPATH aims to improve access and provides regular continuing education opportunities to train professionals from various disciplines to provide quality, transgender-specific health care. Providing mental health care from a distance through the use of technology may be one way to improve access (Fraser, 2009b).

In many places around the world, access to health care for transsexual, transgender, and gender-nonconforming people is also limited by a lack of health insurance or other means to pay for needed care. WPATH urges health insurance companies and other third-party payers to cover the medically necessary treatments to alleviate gender dysphoria (American Medical Association, 2008; Anton, 2009; The World Professional Association for Transgender Health, 2008).

When faced with a client who is unable to access services, referral to available peer support resources (offline and online) is recommended. Finally, harm-reduction approaches might be indicated to assist clients with making healthy decisions to improve their lives.

VIII
Hormone Therapy

Medical Necessity of Hormone Therapy

Feminizing/masculinizing hormone therapy—the administration of exogenous endocrine agents to induce feminizing or masculinizing changes—is a medically necessary intervention for many transsexual, transgender, and gender-nonconforming individuals with gender dysphoria

(Newfield, Hart, Dibble, & Kohler, 2006; Pfäfflin & Junge, 1998). Some people seek maximum feminization/masculinization, while others experience relief with an androgynous presentation resulting from hormonal minimization of existing secondary sex characteristics (Factor & Rothblum, 2008). Evidence for the psychosocial outcomes of hormone therapy is summarized in Appendix D.

Hormone therapy must be individualized based on a patient's goals, the risk/benefit ratio of medications, the presence of other medical conditions, and consideration of social and economic issues. Hormone therapy can provide significant comfort to patients who do not wish to make a social gender role transition or undergo surgery, or who are unable to do so (Meyer III, 2009). Hormone therapy is a recommended criterion for some, but not all, surgical treatments for gender dysphoria (see section XI and Appendix C).

Criteria for Hormone Therapy

Initiation of hormone therapy may be undertaken after a psychosocial assessment has been conducted and informed consent has been obtained by a qualified health professional, as outlined in section VII of the *SOC*. A referral is required from the mental health professional who performed the assessment, unless the assessment was done by a hormone provider who is also qualified in this area.

The criteria for hormone therapy are as follows:

1. Persistent, well-documented gender dysphoria;
2. Capacity to make a fully informed decision and to consent for treatment;
3. Age of majority in a given country (if younger, follow the *SOC* outlined in section VI);
4. If significant medical or mental health concerns are present, they must be reasonably well-controlled.

As noted in section VII of the *SOC*, the presence of coexisting mental health concerns does not necessarily preclude access to feminizing/masculinizing hormones; rather, these concerns need to be managed prior to, or concurrent with, treatment of gender dysphoria.

In selected circumstances, it can be acceptable practice to provide hormones to patients who have not fulfilled these criteria. Examples include facilitating the provision of monitored therapy using hormones of known quality as an alternative to illicit or unsupervised hormone use or to patients

who have already established themselves in their affirmed gender and who have a history of prior hormone use. It is unethical to deny availability or eligibility for hormone therapy solely on the basis of blood seropositivity for blood-borne infections such as HIV or hepatitis B or C.

In rare cases, hormone therapy may be contraindicated due to serious individual health conditions. Health professionals should assist these patients with accessing nonhormonal interventions for gender dysphoria. A qualified mental health professional familiar with the patient is an excellent resource in these circumstances.

Informed Consent

Feminizing/masculinizing hormone therapy may lead to irreversible physical changes. Thus, hormone therapy should be provided only to those who are legally able to provide informed consent. This includes people who have been declared by a court to be emancipated minors, incarcerated people, and cognitively impaired people who are considered competent to participate in their medical decisions (Bockting et al., 2006). Providers should document in the medical record that comprehensive information has been provided and understood about all relevant aspects of the hormone therapy, including both possible benefits and risks and the impact on reproductive capacity.

Relationship Between the *Standards of Care* and Informed Consent Model Protocols

A number of community health centers in the United States have developed protocols for providing hormone therapy based on an approach that has become known as the Informed Consent Model (Callen Lorde Community Health Center, 2000, 2011; Fenway Community Health Transgender Health Program, 2007; Tom Waddell Health Center, 2006). These protocols are consistent with the guidelines presented in the WPATH *Standards of Care, Version 7*. The *SOC* are flexible clinical guidelines; they allow for tailoring of interventions to the needs of the individual receiving services and for tailoring of protocols to the approach and setting in which these services are provided (Ehrbar & Gorton, 2010).

Obtaining informed consent for hormone therapy is an important task of providers to ensure that patients understand the psychological and physical benefits and risks of hormone therapy, as well as its psychosocial implications. Providers prescribing the hormones or health professionals recommending the hormones should have the knowledge and experience to assess gender

dysphoria. They should inform individuals of the particular benefits, limitations, and risks of hormones, given the patient's age, previous experience with hormones, and concurrent physical or mental health concerns.

Screening for and addressing acute or current mental health concerns is an important part of the informed consent process. This may be done by a mental health professional or by an appropriately trained prescribing provider (see section VII of the *SOC*). The same provider or another appropriately trained member of the health care team (e.g., a nurse) can address the psychosocial implications of taking hormones when necessary (e.g., the impact of masculinization/feminization on how one is perceived and its potential impact on relationships with family, friends, and coworkers). If indicated, these providers will make referrals for psychotherapy and for the assessment and treatment of coexisting mental health concerns such as anxiety or depression.

The difference between the Informed Consent Model and *SOC, Version 7,* is that the *SOC* puts greater emphasis on the important role that mental health professionals can play in alleviating gender dysphoria and facilitating changes in gender role and psychosocial adjustment. This may include a comprehensive mental health assessment and psychotherapy, when indicated. In the Informed Consent Model, the focus is on obtaining informed consent as the threshold for the initiation of hormone therapy in a multidisciplinary, harm-reduction environment. Less emphasis is placed on the provision of mental health care until the patient requests it, unless significant mental health concerns are identified that would need to be addressed before hormone prescription.

Physical Effects of Hormone Therapy

Feminizing/masculinizing hormone therapy will induce physical changes that are more congruent with a patient's gender identity.

- In FtM patients, the following physical changes are expected to occur: deepened voice, clitoral enlargement (variable), growth in facial and body hair, cessation of menses, atrophy of breast tissue, and decreased percentage of body fat compared to muscle mass.

- In MtF patients, the following physical changes are expected to occur: breast growth (variable), decreased erectile function, decreased testicular size, and increased percentage of body fat compared to muscle mass.

Most physical changes, whether feminizing or masculinizing, occur over the course of two years. The amount of physical change and the exact timeline of effects can be highly variable. Tables 1a and 1b outline the approximate time course of these physical changes.

TABLE 1A: EFFECTS AND EXPECTED TIME COURSE OF MASCULINIZING HORMONES [A]

Effect	Expected onset[B]	Expected maximum effect[B]
Skin oiliness/acne	1–6 months	1–2 years
Facial/body hair growth	3–6 months	3–5 years
Scalp hair loss	>12 months[C]	Variable
Increased muscle mass/strength	6–12 months	2–5 years[D]
Body fat redistribution	3–6 months	2–5 years
Cessation of menses	2–6 months	n/a
Clitoral enlargement	3–6 months	1–2 years
Vaginal atrophy	3–6 months	1–2 years
Deepened voice	3–12 months	1–2 years

[A] Adapted with permission from Hembree et al.(2009). Copyright 2009, The Endocrine Society.
[B] Estimates represent published and unpublished clinical observations.
[C] Highly dependent on age and inheritance; may be minimal.
[D] Significantly dependent on amount of exercise.

TABLE 1B: EFFECTS AND EXPECTED TIME COURSE OF FEMINIZING HORMONES [A]

Effect	Expected onset[B]	Expected maximum effect[B]
Body fat redistribution	3–6 months	2–5 years
Decreased muscle mass/ strength	3–6 months	1–2 years[C]
Softening of skin/decreased oiliness	3–6 months	Unknown
Decreased libido	1–3 months	1–2 years
Decreased spontaneous erections	1–3 months	3–6 months
Male sexual dysfunction	Variable	Variable
Breast growth	3–6 months	2–3 years
Decreased testicular volume	3–6 months	2–3 years
Decreased sperm production	Variable	Variable
Thinning and slowed growth of body and facial hair	6–12 months	> 3 years[D]
Male pattern baldness	No regrowth, loss stops 1–3 months	1–2 years

[A] Adapted with permission from Hembree et al. (2009). Copyright 2009, The Endocrine Society.
[B] Estimates represent published and unpublished clinical observations.
[C] Significantly dependent on amount of exercise.
[D] Complete removal of male facial and body hair requires electrolysis, laser treatment, or both.

The degree and rate of physical effects depends in part on the dose, route of administration, and medications used, which are selected in accordance with a patient's specific medical goals (e.g., changes in gender role expression, plans for sex reassignment) and medical risk profile. There is no current evidence that response to hormone therapy—with the possible exception of voice deepening in FtM persons—can be reliably predicted based on age, body habitus, ethnicity, or family appearance. All other factors being equal, there is no evidence to suggest that any medically approved type or method of administering hormones is more effective than any other in producing the desired physical changes.

Risks of Hormone Therapy

All medical interventions carry risks. The likelihood of a serious adverse event is dependent on numerous factors: the medication itself, dose, route of administration, and a patient's clinical characteristics (age, comorbidities, family history, health habits). It is thus impossible to predict whether a given adverse effect will happen in an individual patient.

The risks associated with feminizing/masculinizing hormone therapy for the transsexual, transgender, and gender-nonconforming population as a whole are summarized in Table 2. Based on the level of evidence, risks are categorized as follows: (i) likely increased risk with hormone therapy, (ii) possibly increased risk with hormone therapy, or (iii) inconclusive or no increased risk. Items in the last category include those that may present risk, but for which the evidence is so minimal that no clear conclusion can be reached.

Additional detail about these risks can be found in Appendix B, which is based on two comprehensive, evidence-based literature reviews of masculinizing/feminizing hormone therapy (Feldman & Safer, 2009; Hembree et al., 2009), along with a large cohort study (Asscheman et al., 2011). These reviews can serve as detailed references for providers, along with other widely recognized, published clinical materials (Dahl, Feldman, Goldberg, & Jaberi, 2006; Ettner, Monstrey, & Eyler, 2007).

TABLE 2: RISKS ASSOCIATED WITH HORMONE THERAPY. BOLDED ITEMS ARE CLINICALLY SIGNIFICANT

Risk Level	Feminizing hormones	Masculinizing hormones
Likely increased risk	**Venous thromboembolic disease**[A] Gallstones Elevated liver enzymes Weight gain **Hypertriglyceridemia**	**Polycythemia** Weight gain Acne Androgenic alopecia (balding) Sleep apnea
Likely increased risk with presence of additional risk factors[B]	Cardiovascular disease	
Possible increased risk	**Hypertension** Hyperprolactinemia or prolactinoma	Elevated liver enzymes **Hyperlipidemia**
Possible increased risk with presence of additional risk factors[B]	**Type 2 diabetes**[A]	**Destabilization of certain psychiatric disorders**[C] **Cardiovascular disease** **Hypertension** **Type 2 diabetes**
No increased risk or inconclusive	**Breast cancer**	Loss of bone density **Breast cancer** **Cervical cancer** **Ovarian cancer** **Uterine cancer**

* **Note:** Risk is greater with oral estrogen administration than with transdermal estrogen administration.

[A] Risk is greater with oral estrogen administration than with transdermal estrogen administration.

[B] Additional risk factors include age.

[C] Includes bipolar, schizoaffective, and other disorders that may include manic or psychotic symptoms. This adverse event appears to be associated with higher doses or supraphysiologic blood levels of testosterone.

Competency of Hormone-Prescribing Physicians, Relationship with Other Health Professionals

Feminizing/masculinizing hormone therapy is best undertaken in the context of a complete approach to health care that includes comprehensive primary care and a coordinated approach to psychosocial issues (Feldman & Safer, 2009). While psychotherapy or ongoing counseling is not required for the initiation of hormone therapy, if a therapist is involved, then regular communication among health professionals is advised (with the patient's consent) to ensure that the transition process is going well, both physically and psychosocially.

With appropriate training, feminizing/masculinizing hormone therapy can be managed by a variety of providers, including nurse practitioners, physician assistants, and primary care physicians (Dahl et al., 2006). Medical visits relating to hormone maintenance provide an opportunity to deliver broader care to a population that is often medically underserved (Clements, Wilkinson, Kitano, & Marx, 1999; Feldman, 2007; Xavier, 2000). Many of the screening tasks and management of comorbidities associated with long-term hormone use, such as cardiovascular risk factors and cancer screening, fall more uniformly within the scope of primary care rather than specialist care (American Academy of Family Physicians, 2005; Eyler, 2007; World Health Organization, 2008), particularly in locations where dedicated gender teams or specialized physicians are not available.

Given the multidisciplinary needs of transsexual, transgender, and gender-nonconforming people seeking hormone therapy, as well as the difficulties associated with fragmentation of care in general (World Health Organization, 2008), WPATH strongly encourages the increased training and involvement of primary care providers in the area of feminizing/masculinizing hormone therapy. If hormones are prescribed by a specialist, there should be close communication with the patient's primary care provider. Conversely, an experienced hormone provider or endocrinologist should be involved if the primary care physician has no experience with this type of hormone therapy, or if the patient has a pre-existing metabolic or endocrine disorder that could be affected by endocrine therapy.

While formal training programs in transgender medicine do not yet exist, hormone providers have a responsibility to obtain appropriate knowledge and experience in this field. Clinicians can increase their experience and comfort in providing feminizing/masculinizing hormone therapy by co-managing care or consulting with a more experienced provider, or by providing more limited types of hormone therapy before progressing to initiation of hormone therapy. Because this field of medicine is evolving, clinicians should become familiar and keep current with the medical literature, and discuss emerging issues with colleagues. Such discussions might occur through networks established by WPATH and other national/local organizations.

Responsibilities of Hormone-Prescribing Physicians

In general, clinicians who prescribe hormone therapy should engage in the following tasks:

1. Perform an initial evaluation that includes discussion of a patient's physical transition goals, health history, physical examination, risk assessment, and relevant laboratory tests.

2. Discuss with patients the expected effects of feminizing/masculinizing medications and the possible adverse health effects. These effects can include a reduction in fertility (Feldman & Safer, 2009; Hembree et al., 2009). Therefore, reproductive options should be discussed with patients before starting hormone therapy (see section IX).

3. Confirm that patients have the capacity to understand the risks and benefits of treatment and are capable of making an informed decision about medical care.

4. Provide ongoing medical monitoring, including regular physical and laboratory examination to monitor hormone effectiveness and side effects.

5. Communicate as needed with a patient's primary care provider, mental health professional, and surgeon.

6. If needed, provide patients with a brief written statement indicating that they are under medical supervision and care that includes feminizing/masculinizing hormone therapy. Particularly during the early phases of hormone treatment, a patient may wish to carry this statement at all times to help prevent difficulties with the police and other authorities.

Depending on the clinical situation for providing hormones (see below), some of these responsibilities are less relevant. Thus, the degree of counseling, physical examinations, and laboratory evaluations should be individualized to a patient's needs.

Clinical Situations for Hormone Therapy

There are circumstances in which clinicians may be called upon to provide hormones without necessarily initiating or maintaining long-term feminizing/masculinizing hormone therapy. By acknowledging these different clinical situations (see below, from least to highest level of complexity), it may be possible to involve clinicians in feminizing/masculinizing hormone therapy who might not otherwise feel able to offer this treatment.

1. Bridging

Whether prescribed by another clinician or obtained through other means (e.g., purchased over the Internet), patients may present for care already on hormone therapy. Clinicians can provide a limited (1–6 month) prescription for hormones while helping patients find a provider who can prescribe long-term hormone therapy. Providers should assess a patient's current regimen for safety and drug interactions and substitute safer medications or doses when indicated (Dahl et al., 2006; Feldman & Safer, 2009). If hormones were previously prescribed, medical records should be requested (with the patient's permission) to obtain the results of baseline examinations and laboratory tests and any adverse events. Hormone providers should also communicate with any mental health professional who is currently involved in a patient's care. If a patient has never had a psychosocial assessment as recommended by the *SOC* (see section VII), clinicians should refer the patient to a qualified mental health professional if appropriate and feasible (Feldman & Safer, 2009). Providers who prescribe bridging hormones need to work with patients to establish limits as to the duration of bridging therapy.

2. Hormone Therapy Following Gonad Removal

Hormone replacement with estrogen or testosterone is usually continued lifelong after an oophorectomy or orchiectomy, unless medical contraindications arise. Because hormone doses are often decreased after these surgeries (Basson, 2001; Levy, Crown, & Reid, 2003; Moore, Wisniewski, & Dobs, 2003) and only adjusted for age and comorbid health concerns, hormone management in this situation is quite similar to hormone replacement in any hypogonadal patient.

3. Hormone Maintenance Prior to Gonad Removal

Once patients have achieved maximal feminizing/masculinizing benefits from hormones (typically two or more years), they remain on a maintenance dose. The maintenance dose is then adjusted for changes in health conditions, aging, or other considerations such as lifestyle changes (Dahl et al., 2006). When a patient on maintenance hormones presents for care, the provider should assess the patient's current regimen for safety and drug interactions and substitute safer medications or doses when indicated. The patient should continue to be monitored by physical examinations and laboratory testing on a regular basis, as outlined in the literature (Feldman & Safer, 2009; Hembree et al., 2009). The dose and form of hormones should be revisited regularly with any changes in the patient's health status and available evidence on the potential long-term risks of hormones (See *Hormone Regimens,* below).

4. Initiating Hormonal Feminization/Masculinization

This clinical situation requires the greatest commitment in terms of provider time and expertise. Hormone therapy must be individualized based on a patient's goals, the risk/benefit ratio of medications, the presence of other medical conditions, and consideration of social and economic issues. Although a wide variety of hormone regimens have been published (Dahl et al., 2006; Hembree et al., 2009; Moore et al., 2003), there are no published reports of randomized clinical trials comparing safety and efficacy. Despite this variation, a reasonable framework for initial risk assessment and ongoing monitoring of hormone therapy can be constructed, based on the efficacy and safety evidence presented above.

Risk Assessment and Modification for Initiating Hormone Therapy

The initial evaluation for hormone therapy assesses a patient's clinical goals and risk factors for hormone-related adverse events. During the risk assessment, the patient and clinician should develop a plan for reducing risks wherever possible, either prior to initiating therapy or as part of ongoing harm reduction.

All assessments should include a thorough physical exam, including weight, height, and blood pressure. The need for breast, genital, and rectal exams, which are sensitive issues for most transsexual, transgender, and gender-nonconforming patients, should be based on individual risks and preventive health care needs (Feldman & Goldberg, 2006; Feldman, 2007).

Preventive Care

Hormone providers should address preventive health care with patients, particularly if a patient does not have a primary care provider. Depending on a patient's age and risk profile, there may be appropriate screening tests or exams for conditions affected by hormone therapy. Ideally, these screening tests should be carried out prior to the start of hormone therapy.

Risk Assessment and Modification for Feminizing Hormone Therapy (MtF)

There are no absolute contraindications to feminizing therapy per se, but absolute contraindications exist for the different feminizing agents, particularly estrogen. These include previous venous thrombotic events related to an underlying hypercoagulable condition, history of estrogen-sensitive neoplasm, and end-stage chronic liver disease (Gharib et al., 2005).

Other medical conditions, as noted in Table 2 and Appendix B, can be exacerbated by estrogen or androgen blockade, and therefore should be evaluated and reasonably well controlled prior to starting hormone therapy (Feldman & Safer, 2009; Hembree et al., 2009). Clinicians should particularly attend to tobacco use, as it is associated with increased risk of venous thrombosis, which is further increased with estrogen use. Consultation with a cardiologist may be advisable for patients with known cardio- or cerebrovascular disease.

Baseline laboratory values are important to both assess initial risk and evaluate possible future adverse events. Initial labs should be based on the risks of feminizing hormone therapy outlined in Table 2, as well as individual patient risk factors, including family history. Suggested initial lab panels have been published (Feldman & Safer, 2009; Hembree et al., 2009). These can be modified for patients or health care systems with limited resources, and in otherwise healthy patients.

Risk Assessment and Modification for Masculinizing Hormone Therapy (FtM)

Absolute contraindications to testosterone therapy include pregnancy, unstable coronary artery disease, and untreated polycythemia with a hematocrit of 55% or higher (Carnegie, 2004). Because the aromatization of testosterone to estrogen may increase risk in patients with a history of breast or other estrogen dependent cancers (Moore et al., 2003), consultation with an oncologist may be indicated prior to hormone use. Comorbid conditions likely to be exacerbated by testosterone use should be evaluated and treated, ideally prior to starting hormone therapy (Feldman & Safer, 2009; Hembree et al., 2009). Consultation with a cardiologist may be advisable for patients with known cardio- or cerebrovascular disease. (Dhejne et al., 2011).

An increased prevalence of polycystic ovarian syndrome (PCOS) has been noted among FtM patients even in the absence of testosterone use (Baba et al., 2007; Balen, Schachter, Montgomery, Reid, & Jacobs, 1993; Bosinski et al., 1997). While there is no evidence that PCOS is related to the development of a transsexual, transgender, or gender-nonconforming identity, PCOS is associated with increased risk of diabetes, cardiac disease, high blood pressure, and ovarian and endometrial cancers (Cattrall & Healy, 2004). Signs and symptoms of PCOS should be evaluated prior to initiating testosterone therapy, as testosterone may affect many of these conditions. Testosterone can affect the developing fetus (*Physicians' Desk Reference,* 2010), and patients at risk of becoming pregnant require highly effective birth control.

Baseline laboratory values are important to both assess initial risk and evaluate possible future adverse events. Initial labs should be based on the risks of masculinizing hormone therapy outlined in Table 2, as well as individual patient risk factors, including family history. Suggested initial lab panels have been published (Feldman & Safer, 2009; Hembree et al., 2009). These can be modified for patients or health care systems with limited resources, and in otherwise healthy patients.

Clinical Monitoring During Hormone Therapy for Efficacy and Adverse Events

The purpose of clinical monitoring during hormone use is to assess the degree of feminization/masculinization and the possible presence of adverse effects of medication. However, as with the monitoring of any long-term medication, monitoring should take place in the context of comprehensive health care. Suggested clinical monitoring protocols have been published (Feldman & Safer, 2009; Hembree et al., 2009). Patients with comorbid medical conditions may need to be monitored more frequently. Healthy patients in geographically remote or resource-poor areas may be able to use alternative strategies, such as telehealth, or cooperation with local providers such as nurses and physician assistants. In the absence of other indications, health professionals may prioritize monitoring for those risks that are either likely to be increased by hormone therapy or possibly increased by hormone therapy but clinically serious in nature.

Efficacy and Risk Monitoring During Feminizing Hormone Therapy (MtF)

The best assessment of hormone efficacy is clinical response: Is a patient developing a feminized body while minimizing masculine characteristics, consistent with that patient's gender goals? In order to more rapidly predict the hormone dosages that will achieve clinical response, one can measure testosterone levels for suppression below the upper limit of the normal female range and estradiol levels within a premenopausal female range but well below supraphysiologic levels (Feldman & Safer, 2009; Hembree et al., 2009).

Monitoring for adverse events should include both clinical and laboratory evaluation. Follow-up should include careful assessment for signs of cardiovascular impairment and venous thromboembolism (VTE) through measurement of blood pressure, weight, and pulse; heart and lung exams; and examination of the extremities for peripheral edema, localized swelling, or pain (Feldman & Safer, 2009). Laboratory monitoring should be based on the risks of hormone therapy described above, a patient's individual comorbidities and risk factors, and the specific hormone regimen itself. Specific lab-monitoring protocols have been published (Feldman & Safer, 2009; Hembree et al., 2009).

Efficacy and Risk Monitoring During Masculinizing Hormone Therapy (FtM)

The best assessment of hormone efficacy is clinical response: Is a patient developing a masculinized body while minimizing feminine characteristics, consistent with that patient's gender goals? Clinicians can achieve a good clinical response with the least likelihood of adverse events by maintaining testosterone levels within the normal male range while avoiding supraphysiological

levels (Dahl et al., 2006; Hembree et al., 2009). For patients using intramuscular (IM) testosterone cypionate or enanthate, some clinicians check trough levels while others prefer midcycle levels (Dahl et al., 2006; Hembree et al., 2009; Tangpricha, Turner, Malabanan, & Holick, 2001; Tangpricha, Ducharme, Barber, & Chipkin, 2003).

Monitoring for adverse events should include both clinical and laboratory evaluation. Follow-up should include careful assessment for signs and symptoms of excessive weight gain, acne, uterine break-through bleeding, and cardiovascular impairment, as well as psychiatric symptoms in at-risk patients. Physical examinations should include measurement of blood pressure, weight, and pulse; and heart, lung, and skin exams (Feldman & Safer, 2009). Laboratory monitoring should be based on the risks of hormone therapy described above, a patient's individual comorbidities and risk factors, and the specific hormone regimen itself. Specific lab monitoring protocols have been published (Feldman & Safer, 2009; Hembree et al., 2009).

Hormone Regimens

To date, no controlled clinical trials of any feminizing/masculinizing hormone regimen have been conducted to evaluate safety or efficacy in producing physical transition. As a result, wide variation in doses and types of hormones have been published in the medical literature (Moore et al., 2003; Tangpricha et al., 2003; van Kesteren, Asscheman, Megens, & Gooren, 1997). In addition, access to particular medications may be limited by a patient's geographical location and/or social or econonomic situations. For these reasons, WPATH does not describe or endorse a particular feminizing/masculinizing hormone regimen. Rather, the medication classes and routes of administration used in most published regimens are broadly reviewed.

As outlined above, there are demonstrated safety differences in individual elements of various regimens. The Endocrine Society Guidelines (Hembree et al., 2009) and Feldman and Safer (2009) provide specific guidance regarding the types of hormones and suggested dosing to maintain levels within physiologic ranges for a patient's desired gender expression (based on goals of full feminization/masculinization). It is strongly recommend that hormone providers regularly review the literature for new information and use those medications that safely meet individual patient needs with available local resources.

Regimens for Feminizing Hormone Therapy (MtF)

Estrogen

Use of oral estrogen, and specifically ethinyl estradiol, appears to increase the risk of VTE. Because of this safety concern, ethinyl estradiol is not recommended for feminizing hormone therapy. Transdermal estrogen is recommended for those patients with risks factors for VTE. The risk of adverse events increases with higher doses, particular doses resulting in supraphysiologic levels (Hembree et al., 2009). Patients with co-morbid conditions that can be affected by estrogen should avoid oral estrogen if possible and be started at lower levels. Some patients may not be able to safely use the levels of estrogen needed to get the desired results. This possibility needs to be discussed with patients well in advance of starting hormone therapy.

Androgen-reducing medications ("anti-androgens")

A combination of estrogen and "anti-androgens" is the most commonly studied regimen for feminization. Androgen-reducing medications, from a variety of classes of drugs, have the effect of reducing either endogenous testosterone levels or testosterone activity, and thus diminishing masculine characteristics such as body hair. They minimize the dosage of estrogen needed to suppress testosterone, thereby reducing the risks associated with high-dose exogenous estrogen (Prior, Vigna, Watson, Diewold, & Robinow, 1986; Prior, Vigna, & Watson, 1989).

Common anti-androgens include the following:

- Spironolactone, an antihypertensive agent, directly inhibits testosterone secretion and androgen binding to the androgen receptor. Blood pressure and electrolytes need to be monitored because of the potential for hyperkalemia.

- Cyproterone acetate is a progestational compound with anti-androgenic properties. This medication is not approved in the United States because of concerns over potential hepatotoxicity, but it is widely used elsewhere (De Cuypere et al., 2005).

- GnRH agonists (e.g., goserelin, buserelin, triptorelin) are neurohormones that block the gonadtropin-releasing hormone receptor, thus blocking the release of follicle stimulating hormone and luteinizing hormone. This leads to highly effective gonadal blockade. However, these medications are expensive and only available as injectables or implants.

- 5-alpha reductase inhibitors (finasteride and dutasteride) block the conversion of testosterone to the more active agent, 5-alpha-dihydrotestosterone. These medications have beneficial effects on scalp hair loss, body hair growth, sebaceous glands, and skin consistency.

Cyproterone and spironolactone are the most commonly used anti-androgens and are likely the most cost-effective.

Progestins

With the exception of cyproterone, the inclusion of progestins in feminizing hormone therapy is controversial (Oriel, 2000). Because progestins play a role in mammary development on a cellular level, some clinicians believe that these agents are necessary for full breast development (Basson & Prior, 1998; Oriel, 2000). However, a clinical comparison of feminization regimens with and without progestins found that the addition of progestins neither enhanced breast growth nor lowered serum levels of free testosterone (Meyer et al., 1986). There are concerns regarding potential adverse effects of progestins, including depression, weight gain, and lipid changes (Meyer et al., 1986; Tangpricha et al., 2003). Progestins (especially medroxyprogesterone) are also suspected to increase breast cancer risk and cardiovascular risk in women (Rossouw et al., 2002). Micronized progesterone may be better tolerated and have a more favorable impact on the lipid profile than medroxyprogesterone does (de Lignières, 1999; Fitzpatrick, Pace, & Wiita, 2000).

Regimens for Masculinizing Hormone Therapy (FtM)

Testosterone

Testosterone generally can be given orally, transdermally, or parenterally (IM), although buccal and implantable preparations are also available. Oral testosterone undecanoate, available outside the United States, results in lower serum testosterone levels than nonoral preparations and has limited efficacy in suppressing menses (Feldman, 2005, April; Moore et al., 2003). Because intramuscular testosterone cypionate or enanthate are often administered every 2–4 weeks, some patients may notice cyclic variation in effects (e.g., fatigue and irritability at the end of the injection cycle, aggression or expansive mood at the beginning of the injection cycle), as well as more time outside the normal physiologic levels (Jockenhövel, 2004). This may be mitigated by using a lower but more frequent dosage schedule or by using a daily transdermal preparation (Dobs et al., 1999; Jockenhövel, 2004; Nieschlag et al., 2004). Intramuscular testosterone undecanoate (not currently available in the United States) maintains stable, physiologic testosterone levels over approximately 12 weeks and has been effective in both the setting of hypogonadism and in FtM individuals (Mueller, Kiesewetter, Binder, Beckmann, & Dittrich, 2007; Zitzmann, Saad, & Nieschlag, 2006). There is evidence that transdermal and intramuscular testosterone achieve similar masculinizing results, although the timeframe may be somewhat slower with transdermal preparations (Feldman, 2005, April). Especially as patients age, the goal is to use the lowest dose needed to maintain the desired clinical result, with appropriate precautions being made to maintain bone density.

Other agents

Progestins, most commonly medroxyprogesterone, can be used for a short period of time to assist with menstrual cessation early in hormone therapy. GnRH agonists can be used similarly, as well as for refractory uterine bleeding in patients without an underlying gynecological abnormality.

Bioidentical and Compounded Hormones

As discussion surrounding the use of bioidentical hormones in postmenopausal hormone replacement has heightened, interest has also increased in the use of similar compounds in feminizing/masculinizing hormone therapy. There is no evidence that custom compounded bioidentical hormones are safer or more effective than government agency-approved bioidentical hormones (Sood, Shuster, Smith, Vincent, & Jatoi, 2011). Therefore, it has been advised by the North American Menopause Society (2010) and others to assume that, whether the hormone is from a compounding pharmacy or not, if the active ingredients are similar, it should have a similar side-effect profile. WPATH concurs with this assessment.

IX
Reproductive Health

Many transgender, transsexual, and gender-nonconforming people will want to have children. Because feminizing/masculinizing hormone therapy limits fertility (Darney, 2008; Zhang, Gu, Wang, Cui, & Bremner, 1999), it is desirable for patients to make decisions concerning fertility before starting hormone therapy or undergoing surgery to remove/alter their reproductive organs. Cases are known of people who received hormone therapy and genital surgery and later regretted their inability to parent genetically related children (De Sutter, Kira, Verschoor, & Hotimsky, 2002).

Health care professionals—including mental health professionals recommending hormone therapy or surgery, hormone-prescribing physicians, and surgeons—should discuss reproductive options with patients prior to initiation of these medical treatments for gender dysphoria. These discussions should occur even if patients are not interested in these issues at the time of treatment, which may be more common for younger patients (De Sutter, 2009). Early discussions are desirable, but not always possible. If an individual has not had complete sex reassignment surgery, it may be possible to stop hormones long enough for natal hormones to recover, allowing

the production of mature gametes (Payer, Meyer, & Walker, 1979; Van den Broecke, Van der Elst, Liu, Hovatta, & Dhont, 2001).

Besides debate and opinion papers, very few research papers have been published on the reproductive health issues of individuals receiving different medical treatments for gender dysphoria. Another group who faces the need to preserve reproductive function in light of loss or damage to their gonads are people with malignancies that require removal of reproductive organs or use of damaging radiation or chemotherapy. Lessons learned from that group can be applied to people treated for gender dysphoria.

MtF patients, especially those who have not already reproduced, should be informed about sperm-preservation options and encouraged to consider banking their sperm prior to hormone therapy. In a study examining testes that were exposed to high-dose estrogen (Payer et al., 1979), findings suggest that stopping estrogen may allow the testes to recover. In an article reporting on the opinions of MtF individuals towards sperm freezing (De Sutter et al., 2002), the vast majority of 121 survey respondents felt that the availability of freezing sperm should be discussed and offered by the medical world. Sperm should be collected before hormone therapy or after stopping the therapy until the sperm count rises again. Cryopreservation should be discussed even if there is poor semen quality. In adults with azoospermia, a testicular biopsy with subsequent cryopreservation of biopsied material for sperm is possible, but may not be successful.

Reproductive options for FtM patients might include oocyte (egg) or embryo freezing. The frozen gametes and embryo could later be used with a surrogate woman to carry to pregnancy. Studies of women with polycystic ovarian disease suggest that the ovary can recover in part from the effects of high testosterone levels (Hunter & Sterrett, 2000). Stopping the testosterone briefly might allow for ovaries to recover enough to release eggs; success likely depends on the patient's age and duration of testosterone treatment. While not systematically studied, some FtM individuals are doing exactly that, and some have been able to become pregnant and deliver children (More, 1998).

Patients should be advised that these techniques are not available everywhere and can be very costly. Transsexual, transgender, and gender-nonconforming people should not be refused reproductive options for any reason.

A special group of individuals are prepubertal or pubertal adolescents who will never develop reproductive function in their natal sex due to blockers or cross-gender hormones. At this time there is no technique for preserving function from the gonads of these individuals.

X

Voice and Communication Therapy

Communication, both verbal and nonverbal, is an important aspect of human behavior and gender expression. Transsexual, transgender, and gender-nonconforming people might seek the assistance of a voice and communication specialist to develop vocal characteristics (e.g., pitch, intonation, resonance, speech rate, phrasing patterns) and non-verbal communication patterns (e.g., gestures, posture/movement, facial expressions) that facilitate comfort with their gender identity. Voice and communication therapy may help to alleviate gender dysphoria and be a positive and motivating step towards achieving one's goals for gender role expression.

Competency of Voice and Communication Specialists Working with Transsexual, Transgender, and Gender-Nonconforming Clients

Specialists may include speech-language pathologists, speech therapists, and speech-voice clinicians. In most countries the professional association for speech-language pathologists requires specific qualifications and credentials for membership. In some countries the government regulates practice through licensing, certification, or registration processes (American Speech-Language-Hearing Association, 2011; Canadian Association of Speech-Language Pathologists and Audiologists; Royal College of Speech Therapists, United Kingdom; Speech Pathology Australia).

The following are recommended minimum credentials for voice and communication specialists working with transsexual, transgender, and gender-nonconforming clients:

1. Specialized training and competence in the assessment and development of communication skills in transsexual, transgender, and gender-nonconforming clients.

2. A basic understanding of transgender health, including hormonal and surgical treatments for feminization/masculinization and trans-specific psychosocial issues as outlined in the *SOC*; and familiarity with basic sensitivity protocols such as the use of preferred gender pronoun and name (Canadian Association of Speech-Language Pathologists and Audiologists; Royal College of Speech Therapists, United Kingdom; Speech Pathology Australia).

3. Continuing education in the assessment and development of communication skills in transsexual, transgender, and gender-nonconforming clients. This may include attendance at professional meetings, workshops, or seminars; participation in research related to gender identity issues; independent study; or mentoring from an experienced, certified clinician.

Other professionals such as vocal coaches, theatre professionals, singing teachers, and movement experts may play a valuable adjunct role. Such professionals will ideally have experience working with, or be actively collaborating with, speech-language pathologists.

Assessment and Treatment Considerations

The overall purpose of voice and communication therapy is to help clients adapt their voice and communication in a way that is both safe and authentic, resulting in communication patterns that clients feel are congruent with their gender identity and that reflect their sense of self (Adler, Hirsch, & Mordaunt, 2006). It is essential that voice and communication specialists be sensitive to individual communication preferences. Communication—style, voice, choice of language, etc.—is personal. Individuals should not be counseled to adopt behaviors with which they are not comfortable or which do not feel authentic. Specialists can best serve their clients by taking the time to understand a person's gender concerns and goals for gender-role expression (American Speech-Language-Hearing Association, 2011; Canadian Association of Speech-Language Pathologists and Audiologists; Royal College of Speech Therapists, United Kingdom; Speech Pathology Australia).

Individuals may choose the communication behaviors that they wish to acquire in accordance with their gender identity. These decisions are also informed and supported by the knowledge of the voice and communication specialist and by the assessment data for a specific client (Hancock, Krissinger, & Owen, 2010). Assessment includes a client's self-evaluation and a specialist's evaluation of voice, resonance, articulation, spoken language, and non-verbal communication (Adler et al., 2006; Hancock et al., 2010).

Voice-and-communication treatment plans are developed by considering the available research evidence, the clinical knowledge and experience of the specialist, and the client's own goals and values (American Speech-Language-Hearing Association, 2011; Canadian Association of Speech-Language Pathologists and Audiologists; Royal College of Speech Therapists, United Kingdom; Speech Pathology Australia). Targets of treatment typically include pitch, intonation, loudness and stress patterns, voice quality, resonance, articulation, speech rate and phrasing, language, and nonverbal communication (Adler et al., 2006; Davies & Goldberg, 2006; de Bruin, Coerts, & Greven, 2000; Gelfer, 1999; McNeill, 2006; Oates & Dacakis, 1983). Treatment may involve individual and/or group sessions. The frequency and duration of treatment will vary according to a client's needs. Existing protocols for voice-and-communication treatment can be considered in

developing an individualized therapy plan (Carew, Dacakis, & Oates, 2007; Dacakis, 2000; Davies & Goldberg, 2006; Gelfer, 1999; McNeill, Wilson, Clark, & Deakin, 2008; Mount & Salmon, 1988).

Feminizing or masculinizing the voice involves non-habitual use of the voice production mechanism. Prevention measures are necessary to avoid the possibility of vocal misuse and long-term vocal damage. All voice and communication therapy services should therefore include a vocal health component (Adler et al., 2006).

Vocal Health Considerations After Voice Feminization Surgery

As noted in section XI, some transsexual, transgender, and gender-nonconforming people will undergo voice feminization surgery. (Voice deepening can be achieved through masculinizing hormone therapy, but feminizing hormones do not have an impact on the adult MtF voice.) There are varying degrees of satisfaction, safety, and long-term improvement in patients who have had such surgery. It is recommended that individuals undergoing voice feminization surgery also consult a voice and communication specialist to maximize the surgical outcome, help protect vocal health, and learn nonpitch related aspects of communication. Voice surgery procedures should include follow-up sessions with a voice and communication specialist who is licensed and/or credentialed by the board responsible for speech therapists/speech-language pathologists in that country (Kanagalingam et al., 2005; Neumann & Welzel, 2004).

XI
Surgery

Sex Reassignment Surgery Is Effective and Medically Necessary

Surgery – particularly genital surgery – is often the last and the most considered step in the treatment process for gender dysphoria. While many transsexual, transgender, and gender-nonconforming individuals find comfort with their gender identity, role, and expression without surgery, for many others surgery is essential and medically necessary to alleviate their gender dysphoria (Hage & Karim, 2000). For the latter group, relief from gender dysphoria cannot be achieved

without modification of their primary and/or secondary sex characteristics to establish greater congruence with their gender identity. Moreover, surgery can help patients feel more at ease in the presence of sex partners or in venues such as physicians' offices, swimming pools, or health clubs. In some settings, surgery might reduce risk of harm in the event of arrest or search by police or other authorities.

Follow-up studies have shown an undeniable beneficial effect of sex reassignment surgery on postoperative outcomes such as subjective well-being, cosmesis, and sexual function (De Cuypere et al., 2005; Gijs & Brewaeys, 2007; Klein & Gorzalka, 2009; Pfäfflin & Junge, 1998). Additional information on the outcomes of surgical treatments are summarized in Appendix D.

Ethical Questions Regarding Sex Reassignment Surgery

In ordinary surgical practice, pathological tissues are removed to restore disturbed functions, or alterations are made to body features to improve a patient's self image. Some people, including some health professionals, object on ethical grounds to surgery as a treatment for gender dysphoria, because these conditions are thought not to apply.

It is important that health professionals caring for patients with gender dysphoria feel comfortable about altering anatomically normal structures. In order to understand how surgery can alleviate the psychological discomfort and distress of individuals with gender dysphoria, professionals need to listen to these patients discuss their symptoms, dilemmas, and life histories. The resistance against performing surgery on the ethical basis of "above all do no harm" should be respected, discussed, and met with the opportunity to learn from patients themselves about the psychological distress of having gender dysphoria and the potential for harm caused by denying access to appropriate treatments.

Genital and breast/chest surgical treatments for gender dysphoria are not merely another set of elective procedures. Typical elective procedures involve only a private mutually consenting contract between a patient and a surgeon. Genital and breast/chest surgeries as medically necessary treatments for gender dysphoria are to be undertaken only after assessment of the patient by qualified mental health professionals, as outlined in section VII of the *SOC*. These surgeries may be performed once there is written documentation that this assessment has occurred and that the person has met the criteria for a specific surgical treatment. By following this procedure, mental health professionals, surgeons, and patients share responsibility for the decision to make irreversible changes to the body.

It is unethical to deny availability or eligibility for sex reassignment surgeries solely on the basis of blood seropositivity for blood-borne infections such as HIV or hepatitis C or B.

Relationship of Surgeons with Mental Health Professionals, Hormone-Prescribing Physicians (if Applicable), and Patients (Informed Consent)

The role of a surgeon in the treatment of gender dysphoria is not that of a mere technician. Rather, conscientious surgeons will have insight into each patient's history and the rationale that led to the referral for surgery. To that end, surgeons must talk at length with their patients and have close working relationships with other health professionals who have been actively involved in their clinical care.

Consultation is readily accomplished when a surgeon practices as part of an interdisciplinary health care team. In the absence of this, a surgeon must be confident that the referring mental health professional(s), and if applicable the physician who prescribes hormones, is/are competent in the assessment and treatment of gender dysphoria, because the surgeon is relying heavily on his/her/their expertise.

Once a surgeon is satisfied that the criteria for specific surgeries have been met (as outlined below), surgical treatment should be considered and a preoperative surgical consultation should take place. During this consultation, the procedure and postoperative course should be extensively discussed with the patient. Surgeons are responsible for discussing all of the following with patients seeking surgical treatments for gender dysphoria:

- The different surgical techniques available (with referral to colleagues who provide alternative options);
- The advantages and disadvantages of each technique;
- The limitations of a procedure to achieve "ideal" results; surgeons should provide a full range of before-and-after photographs of their own patients, including both successful and unsuccessful outcomes;
- The inherent risks and possible complications of the various techniques; surgeons should inform patients of their own complication rates with each procedure.

These discussions are the core of the informed consent process, which is both an ethical and legal requirement for any surgical procedure. Ensuring that patients have a realistic expectation of outcomes is important in achieving a result that will alleviate their gender dysphoria.

All of this information should be provided to patients in writing, in a language in which they are fluent, and in graphic illustrations. Patients should receive the information in advance (possibly

via the Internet) and be given ample time to review it carefully. The elements of informed consent should always be discussed face-to-face prior to the surgical intervention. Questions can then be answered and written informed consent can be provided by the patient. Because these surgeries are irreversibile, care should be taken to ensure that patients have sufficient time to absorb information fully before they are asked to provide informed consent. A minimum of 24 hours is suggested.

Surgeons should provide immediate aftercare and consultation with other physicians serving the patient in the future. Patients should work with their surgeon to develop an adequate aftercare plan for the surgery.

Overview of Surgical Procedures for the Treatment of Patients with Gender Dysphoria

For the Male-to-Female (MtF) Patient, Surgical Procedures May Include the Following:

1. Breast/chest surgery: augmentation mammoplasty (implants/lipofilling);

2. Genital surgery: penectomy, orchiectomy, vaginoplasty, clitoroplasty, vulvoplasty;

3. Nongenital, nonbreast surgical interventions: facial feminization surgery, liposuction, lipofilling, voice surgery, thyroid cartilage reduction, gluteal augmentation (implants/lipofilling), hair reconstruction, and various aesthetic procedures.

For the Female-to-Male (FtM) Patient, Surgical Procedures May Include the Following:

1. Breast/chest surgery: subcutaneous mastectomy, creation of a male chest;

2. Genital surgery: hysterectomy/salpingo-oophorectomy, reconstruction of the fixed part of the urethra, which can be combined with a metoidioplasty or with a phalloplasty (employing a pedicled or free vascularized flap), vaginectomy, scrotoplasty, and implantation of erection and/or testicular prostheses;

3. Nongenital, nonbreast surgical interventions: voice surgery (rare), liposuction, lipofilling, pectoral implants, and various aesthetic procedures.

Reconstructive Versus Aesthetic Surgery

The question of whether sex reassignment surgery should be considered "aesthetic" surgery or "reconstructive" surgery is pertinent not only from a philosophical point of view, but also from a financial point of view. Aesthetic or cosmetic surgery is mostly regarded as not medically necessary and therefore is typically paid for entirely by the patient. In contrast, reconstructive procedures are considered medically necessary—with unquestionable therapeutic results—and thus paid for partially or entirely by national health systems or insurance companies.

Unfortunately, in the field of plastic and reconstructive surgery (both in general and specifically for gender-related surgeries), there is no clear distinction between what is purely reconstructive and what is purely cosmetic. Most plastic surgery procedures actually are a mixture of both reconstructive and cosmetic components.

While most professionals agree that genital surgery and mastectomy cannot be considered purely cosmetic, opinions diverge as to what degree other surgical procedures (e.g., breast augmentation, facial feminization surgery) can be considered purely reconstructive. Although it may be much easier to see a phalloplasty or a vaginoplasty as an intervention to end lifelong suffering, for certain patients an intervention like a reduction rhinoplasty can have a radical and permanent effect on their quality of life, and therefore is much more medically necessary than for somebody without gender dysphoria.

Criteria for Surgeries

As for all of the *SOC*, the criteria for initiation of surgical treatments for gender dysphoria were developed to promote optimal patient care. While the *SOC* allow for an individualized approach to best meet a patient's health care needs, a criterion for all breast/chest and genital surgeries is documentation of persistent gender dysphoria by a qualified mental health professional. For some surgeries, additional criteria include preparation and treatment consisting of feminizing/masculinizing hormone therapy and one year of continuous living in a gender role that is congruent with one's gender identity.

These criteria are outlined below. Based on the available evidence and expert clinical consensus, different recommendations are made for different surgeries.

The *SOC* do not specify an order in which different surgeries should occur. The number and sequence of surgical procedures may vary from patient to patient, according to their clinical needs.

Criteria for Breast/Chest Surgery (One Referral)

Criteria for mastectomy and creation of a male chest in FtM patients:

1. Persistent, well-documented gender dysphoria;
2. Capacity to make a fully informed decision and to consent for treatment;
3. Age of majority in a given country (if younger, follow the *SOC* for children and adolescents);
4. If significant medical or mental health concerns are present, they must be reasonably well controlled.

Hormone therapy is not a prerequisite.

Criteria for breast augmentation (implants/lipofilling) in MtF patients:

1. Persistent, well-documented gender dysphoria;
2. Capacity to make a fully informed decision and to consent for treatment;
3. Age of majority in a given country (if younger, follow the *SOC* for children and adolescents);
4. If significant medical or mental health concerns are present, they must be reasonably well controlled.

Although not an explicit criterion, it is recommended that MtF patients undergo feminizing hormone therapy (minimum 12 months) prior to breast augmentation surgery. The purpose is to maximize breast growth in order to obtain better surgical (aesthetic) results.

Criteria for Genital Surgery (Two Referrals)

The criteria for genital surgery are specific to the type of surgery being requested.

Criteria for hysterectomy and salpingo-oophorectomy in FtM patients and for orchiectomy in MtF patients:

1. Persistent, well-documented gender dysphoria;

2. Capacity to make a fully informed decision and to consent for treatment;

3. Age of majority in a given country;

4. If significant medical or mental health concerns are present, they must be well controlled.

5. 12 continuous months of hormone therapy as appropriate to the patient's gender goals (unless hormones are not clinically indicated for the individual).

The aim of hormone therapy prior to gonadectomy is primarily to introduce a period of reversible estrogen or testosterone suppression, before the patient undergoes irreversible surgical intervention.

These criteria do not apply to patients who are having these procedures for medical indications other than gender dysphoria.

Criteria for metoidioplasty or phalloplasty in FtM patients and for vaginoplasty in MtF patients:

1. Persistent, well-documented gender dysphoria;

2. Capacity to make a fully informed decision and to consent for treatment;

3. Age of majority in a given country;

4. If significant medical or mental health concerns are present, they must be well controlled;

5. 12 continuous months of hormone therapy as appropriate to the patient's gender goals (unless hormones are not clinically indicated for the individual).

6. 12 continuous months of living in a gender role that is congruent with their gender identity.

Although not an explicit criterion, it is recommended that these patients also have regular visits with a mental health or other medical professional.

Rationale for a preoperative, 12-month experience of living in an identity-congruent gender role:

The criterion noted above for some types of genital surgeries—i.e., that patients engage in 12 continuous months of living in a gender role that is congruent with their gender identity—is based on expert clinical consensus that this experience provides ample opportunity for patients to experience and socially adjust in their desired gender role, before undergoing irreversible surgery. As noted in section VII, the social aspects of changing one's gender role are usually challenging—

often more so than the physical aspects. Changing gender role can have profound personal and social consequences, and the decision to do so should include an awareness of what the familial, interpersonal, educational, vocational, economic, and legal challenges are likely to be, so that people can function successfully in their gender role. Support from a qualified mental health professional and from peers can be invaluable in ensuring a successful gender role adaptation (Bockting, 2008).

The duration of 12 months allows for a range of different life experiences and events that may occur throughout the year (e.g., family events, holidays, vacations, season-specific work or school experiences). During this time, patients should present consistently, on a day-to-day basis and across all settings of life, in their desired gender role. This includes coming out to partners, family, friends, and community members (e.g., at school, work, other settings).

Health professionals should clearly document a patient's experience in the gender role in the medical chart, including the start date of living full time for those who are preparing for genital surgery. In some situations, if needed, health professionals may request verification that this criterion has been fulfilled: They may communicate with individuals who have related to the patient in an identity-congruent gender role, or request documentation of a legal name and/or gender marker change, if applicable.

Surgery for People with Psychotic Conditions and Other Serious Mental Illnesses

When patients with gender dysphoria are also diagnosed with severe psychiatric disorders and impaired reality testing (e.g., psychotic episodes, bipolar disorder, dissociative identity disorder, borderline personality disorder), an effort must be made to improve these conditions with psychotropic medications and/or psychotherapy before surgery is contemplated. (Dhejne et al., 2011). Reevaluation by a mental health professional qualified to assess and manage psychotic conditions should be conducted prior to surgery, describing the patient's mental status and readiness for surgery. It is preferable that this mental health professional be familiar with the patient. No surgery should be performed while a patient is actively psychotic (De Cuypere & Vercruysse, 2009).

Competency of Surgeons Performing Breast/Chest or Genital Surgery

Physicians who perform surgical treatments for gender dsyphoria should be urologists, gynecologists, plastic surgeons, or general surgeons, and board-certified as such by the relevant national

and/or regional association. Surgeons should have specialized competence in genital reconstructive techniques as indicated by documented supervised training with a more experienced surgeon. Even experienced surgeons must be willing to have their surgical skills reviewed by their peers. An official audit of surgical outcomes and publication of these results would be greatly reassuring to both referring health professionals and patients. Surgeons should regularly attend professional meetings where new techniques are presented. The internet is often effectively used by patients to share information on their experience with surgeons and their teams.

Ideally, surgeons should be knowledgeable about more than one surgical technique for genital reconstruction so that they, in consultation with patients, can choose the ideal technique for each individual. Alternatively, if a surgeon is skilled in a single technique and this procedure is either not suitable for or desired by a patient, the surgeon should inform the patient about other procedures and offer referral to another appropriately skilled surgeon.

Breast/Chest Surgery Techniques and Complications

Although breast/chest appearance is an important secondary sex characteristic, breast presence or size is not involved in the legal definitions of sex and gender and is not necessary for reproduction. The performance of breast/chest operations for treatment of gender dysphoria should be considered with the same care as beginning hormone therapy, as both produce relatively irreversible changes to the body.

For the MtF patient, a breast augmentation (sometimes called “chest reconstruction”) is not different from the procedure in a natal female patient. It is usually performed through implantation of breast prostheses and occasionally with the lipofilling technique. Infections and capsular fibrosis are rare complications of augmentation mammoplasty in MtF patients (Kanhai, Hage, Karim, & Mulder, 1999).

For the FtM patient, a mastectomy or “male chest contouring” procedure is available. For many FtM patients, this is the only surgery undertaken. When the amount of breast tissue removed requires skin removal, a scar will result and the patient should be so informed. Complications of subcutaneous mastectomy can include nipple necrosis, contour irregularities, and unsightly scarring (Monstrey et al., 2008).

Genital Surgery Techniques and Complications

Genital surgical procedures for the MtF patient may include orchiectomy, penectomy, vaginoplasty, clitoroplasty, and labiaplasty. Techniques include penile skin inversion, pedicled colosigmoid

transplant, and free skin grafts to line the neovagina. Sexual sensation is an important objective in vaginoplasty, along with creation of a functional vagina and acceptable cosmesis.

Surgical complications of MtF genital surgery may include complete or partial necrosis of the vagina and labia, fistulas from the bladder or bowel into the vagina, stenosis of the urethra, and vaginas that are either too short or too small for coitus. While the surgical techniques for creating a neovagina are functionally and aesthetically excellent, anorgasmia following the procedure has been reported, and a second stage labiaplasty may be needed for cosmesis (Klein & Gorzalka, 2009; Lawrence, 2006).

Genital surgical procedures for FtM patients may include hysterectomy, salpingo-oophorectomy, vaginectomy, metoidioplasty, scrotoplasty, urethroplasty, placement of testicular prostheses, and phalloplasty. For patients without former abdominal surgery, the laparoscopic technique for hysterectomy and salpingo-oophorectomy is recommended to avoid a lower-abdominal scar. Vaginal access may be difficult as most patients are nulliparous and have often not experienced penetrative intercourse. Current operative techniques for phalloplasty are varied. The choice of techniques may be restricted by anatomical or surgical considerations and by a client's financial considerations. If the objectives of phalloplasty are a neophallus of good appearance, standing micturition, sexual sensation, and/or coital ability, patients should be clearly informed that there are several separate stages of surgery and frequent technical difficulties, which may require additional operations. Even metoidioplasty, which in theory is a one-stage procedure for construction of a microphallus, often requires more than one operation. The objective of standing micturition with this technique can not always be ensured (Monstrey et al., 2009).

Complications of phalloplasty in FtMs may include frequent urinary tract stenoses and fistulas, and occasionally necrosis of the neophallus. Metoidioplasty results in a micropenis, without the capacity for standing urination. Phalloplasty, using a pedicled or a free vascularized flap, is a lengthy, multi-stage procedure with significant morbidity that includes frequent urinary complications and unavoidable donor site scarring. For this reason, many FtM patients never undergo genital surgery other than hysterectomy and salpingo-oophorectomy (Hage & De Graaf, 1993).

Even patients who develop severe surgical complications seldom regret having undergone surgery. The importance of surgery can be appreciated by the repeated finding that quality of surgical results is one of the best predictors of the overall outcome of sex reassignment (Lawrence, 2006).

Other Surgeries

Other surgeries for assisting in body feminization include reduction thyroid chondroplasty (reduction of the Adam's apple), voice modification surgery, suction-assisted lipoplasty (contour

modeling) of the waist, rhinoplasty (nose correction), facial bone reduction, face-lift, and blepharoplasty (rejuvenation of the eyelid). Other surgeries for assisting in body masculinization include liposuction, lipofilling, and pectoral implants. Voice surgery to obtain a deeper voice is rare but may be recommended in some cases, such as when hormone therapy has been ineffective.

Although these surgeries do not require referral by mental health professionals, such professionals can play an important role in assisting clients in making a fully informed decision about the timing and implications of such procedures in the context of the social transition.

Although most of these procedures are generally labeled "purely aesthetic," these same operations in an individual with severe gender dysphoria can be considered medically necessary, depending on the unique clinical situation of a given patient's condition and life situation. This ambiguity reflects reality in clinical situations, and allows for individual decisions as to the need and desirability of these procedures.

XII

Postoperative Care and Follow-Up

Long-term postoperative care and follow-up after surgical treatments for gender dysphoria are associated with good surgical and psychosocial outcomes (Monstrey et al., 2009). Follow-up is important to a patient's subsequent physical and mental health and to a surgeon's knowledge about the benefits and limitations of surgery. Surgeons who operate on patients coming from long distances should include personal follow-up in their care plan and attempt to ensure affordable local long-term aftercare in their patients' geographic region.

Postoperative patients may sometimes exclude themselves from follow-up by specialty providers, including the hormone-prescribing physician (for patients receiving hormones), not recognizing that these providers are often best able to prevent, diagnose, and treat medical conditions that are unique to hormonally and surgically treated patients. The need for follow-up equally extends to mental health professionals, who may have spent a longer period of time with the patient than any other professional and therefore are in an excellent position to assist in any postoperative adjustment difficulties. Health professionals should stress the importance of postoperative follow-up care with their patients and offer continuity of care.

Postoperative patients should undergo regular medical screening according to recommended guidelines for their age. This is discussed more in the next section.

XIII

Lifelong Preventive and Primary Care

Transsexual, transgender, and gender-nonconforming people need health care throughout their lives. For example, to avoid the negative secondary effects of having a gonadectomy at a relatively young age and/or receiving long-term, high-dose hormone therapy, patients need thorough medical care by providers experienced in primary care and transgender health. If one provider is not able to provide all services, ongoing communication among providers is essential.

Primary care and health maintenance issues should be addressed before, during, and after any possible changes in gender role and medical interventions to alleviate gender dysphoria. While hormone providers and surgeons play important roles in preventive care, every transsexual, transgender, and gender-nonconforming person should partner with a primary care provider for overall health care needs (Feldman, 2007).

General Preventive Health Care

Screening guidelines developed for the general population are appropriate for organ systems that are unlikely to be affected by feminizing/masculinizing hormone therapy. However, in areas such as cardiovascular risk factors, osteoporosis, and some cancers (breast, cervical, ovarian, uterine, and prostate), such general guidelines may either over- or underestimate the cost-effectiveness of screening individuals who are receiving hormone therapy.

Several resources provide detailed protocols for the primary care of patients undergoing feminizing/masculinizing hormone therapy, including therapy that is provided after sex reassignment surgeries (Center of Excellence for Transgender Health, UCSF, 2011; Feldman & Goldberg, 2006; Feldman, 2007; Gorton, Buth, & Spade, 2005). Clinicians should consult their national evidence-based guidelines and discuss screening with their patients in light of the effects of hormone therapy on their baseline risk.

Cancer Screening

Cancer screening of organ systems that are associated with sex can present particular medical and psychosocial challenges for transsexual, transgender, and gender-nonconforming patients and their health care providers. In the absence of large-scale prospective studies, providers are unlikely to have enough evidence to determine the appropriate type and frequency of cancer screenings for this population. Over-screening results in higher health care costs, high false positive rates, and often unnecessary exposure to radiation and/or diagnostic interventions such as biopsies. Under-screening results in diagnostic delay for potentially treatable cancers. Patients may find cancer screening gender affirming (such as mammograms for MtF patients) or both physically and emotionally painful (such as Pap smears offer continuity of care for FtM patients).

Urogenital Care

Gynecologic care may be necessary for transsexual, transgender, and gender-nonconforming people of both sexes. For FtM patients, such care is needed predominantly for individuals who have not had genital surgery. For MtF patients, such care is needed after genital surgery. While many surgeons counsel patients regarding postoperative urogenital care, primary care clinicians and gynecologists should also be familiar with the special genital concerns of this population.

All MtF patients should receive counseling regarding genital hygiene, sexuality, and prevention of sexually transmitted infections; those who have had genital surgery should also be counseled on the need for regular vaginal dilation or penetrative intercourse in order to maintain vaginal depth and width (van Trotsenburg, 2009). Due to the anatomy of the male pelvis, the axis and the dimensions of the neovagina differ substantially from those of a biologic vagina. This anatomic difference can affect intercourse if not understood by MtF patients and their partners (van Trotsenburg, 2009).

Lower urinary tract infections occur frequently in MtF patients who have had surgery because of the reconstructive requirements of the shortened urethra. In addition, these patients may suffer from functional disorders of the lower urinary tract; such disorders may be caused by damage of the autonomous nerve supply of the bladder floor during dissection between the rectum and the bladder, and by a change of the position of the bladder itself. A dysfunctional bladder (e.g., overactive bladder, stress or urge urinary incontinence) may occur after sex reassignment surgery (Hoebeke et al., 2005; Kuhn, Hiltebrand, & Birkhauser, 2007).

Most FtM patients do not undergo vaginectomy (colpectomy). For patients who take masculinizing hormones, despite considerable conversion of testosterone to estrogens, atrophic changes of the vaginal lining can be observed regularly and may lead to pruritus or burning. Examination can be

both physically and emotionally painful, but lack of treatment can seriously aggravate the situation. Gynecologists treating the genital complaints of FtM patients should be aware of the sensitivity that patients with a male gender identity and masculine gender expression might have around having genitals typically associated with the female sex.

XIV

Applicability of the *Standards of Care* to People Living in Institutional Environments

The *SOC* in their entirety apply to all transsexual, transgender, and gender-nonconforming people, irrespective of their housing situation. People should not be discriminated against in their access to appropriate health care based on where they live, including institutional environments such as prisons or long-/intermediate-term health care facilities (Brown, 2009). Health care for transsexual, transgender, and gender-nonconforming people living in an institutional environment should mirror that which would be available to them if they were living in a non-institutional setting within the same community.

All elements of assessment and treatment as described in the *SOC* can be provided to people living in institutions (Brown, 2009). Access to these medically necessary treatments should not be denied on the basis of institutionalization or housing arrangements. If the in-house expertise of health professionals in the direct or indirect employ of the institution does not exist to assess and/or treat people with gender dysphoria, it is appropriate to obtain outside consultation from professionals who are knowledgeable about this specialized area of health care.

People with gender dysphoria in institutions may also have coexisting mental health conditions (Cole et al., 1997). These conditions should be evaluated and treated appropriately.

People who enter an institution on an appropriate regimen of hormone therapy should be continued on the same, or similar, therapies and monitored according to the *SOC*. A "freeze frame" approach is not considered appropriate care in most situations *(Kosilek v. Massachusetts Department of Corrections/Maloney,* C.A. No. 92–12820-MLW, 2002). People with gender dysphoria who are deemed appropriate for hormone therapy (following the *SOC*) should be started on such therapy. The consequences of abrupt withdrawal of hormones or lack of initiation of hormone therapy when medically necessary include a high likelihood of negative outcomes such as surgical self-treatment by autocastration, depressed mood, dysphoria, and/or suicidality (Brown, 2010).

Reasonable accommodations to the institutional environment can be made in the delivery of care consistent with the *SOC*, if such accommodations do not jeopardize the delivery of medically necessary care to people with gender dysphoria. An example of a reasonable accommodation is the use of injectable hormones, if not medically contraindicated, in an environment where diversion of oral preparations is highly likely (Brown, 2009). Denial of needed changes in gender role or access to treatments, including sex reassignment surgery, on the basis of residence in an institution are not reasonable accommodations under the *SOC* (Brown, 2010).

Housing and shower/bathroom facilities for transsexual, transgender, and gender-nonconforming people living in institutions should take into account their gender identity and role, physical status, dignity, and personal safety. Placement in a single-sex housing unit, ward, or pod on the sole basis of the appearance of the external genitalia may not be appropriate and may place the individual at risk for victimization (Brown, 2009).

Institutions where transsexual, transgender, and gender-nonconforming people reside and receive health care should monitor for a tolerant and positive climate to ensure that residents are not under attack by staff or other residents.

XV

Applicability of the *Standards of Care* to People With Disorders of Sex Development

Terminology

The term *disorder of sex development* (DSD) refers to a somatic condition of atypical development of the reproductive tract (Hughes, Houk, Ahmed, Lee, & LWPES/ESPE Consensus Group, 2006). DSDs include the condition that used to be called *intersexuality*. Although the terminology was changed to DSD during an international consensus conference in 2005 (Hughes et al., 2006), disagreement about language use remains. Some people object strongly to the "disorder" label, preferring instead to view these congenital conditions as a matter of diversity (Diamond, 2009) and to continue using the terms *intersex* or *intersexuality*. In the *SOC*, WPATH uses the term DSD in an objective and value-free manner, with the goal of ensuring that health professionals recognize this medical term and use it to access relevant literature as the field progresses. WPATH remains

open to new terminology that will further illuminate the experience of members of this diverse population and lead to improvements in health care access and delivery.

Rationale for Addition to the *SOC*

Previously, individuals with a DSD who also met the *DSM-IV-TR's* behavioral criteria for Gender Identity Disorder (American Psychiatric Association, 2000) were excluded from that general diagnosis. Instead, they were categorized as having a "Gender Identity Disorder - Not Otherwise Specified." They were also excluded from the WPATH *Standards of Care*.

The current proposal for *DSM-5* (www.dsm5.org) is to replace the term *gender identity disorder* with *gender dysphoria*. Moreover, the proposed changes to the *DSM* consider gender dysphoric people with a DSD to have a subtype of gender dysphoria. This proposed categorization—which explicitly differentiates between gender dysphoric individuals with and without a DSD—is justified: In people with a DSD, gender dysphoria differs in its phenomenological presentation, epidemiology, life trajectories, and etiology (Meyer-Bahlburg, 2009).

Adults with a DSD and gender dysphoria have increasingly come to the attention of health professionals. Accordingly, a brief discussion of their care is included in this version of the *SOC*.

Health History Considerations

Health professionals assisting patients with both a DSD and gender dysphoria need to be aware that the medical context in which such patients have grown up is typically very different from that of people without a DSD.

Some people are recognized as having a DSD through the observation of gender-atypical genitals at birth. (Increasingly this observation is made during the prenatal period by way of imaging procedures such as ultrasound.) These infants then undergo extensive medical diagnostic procedures. After consultation among the family and health professionals—during which the specific diagnosis, physical and hormonal findings, and feedback from long-term outcome studies (Cohen-Kettenis, 2005; Dessens, Slijper, & Drop, 2005; Jurgensen, Hiort, Holterhus, & Thyen, 2007; Mazur, 2005; Meyer-Bahlburg, 2005; Stikkelbroeck et al., 2003; Wisniewski, Migeon, Malouf, & Gearhart, 2004) are considered—the newborn is assigned a sex, either male or female.

Other individuals with a DSD come to the attention of health professionals around the age of puberty through the observation of atypical development of secondary sex characteristics. This observation also leads to a specific medical evaluation.

The type of DSD and severity of the condition has significant implications for decisions about a patient's initial sex assignment, subsequent genital surgery, and other medical and psychosocial care (Meyer-Bahlburg, 2009). For instance, the degree of prenatal androgen exposure in individuals with a DSD has been correlated with the degree of masculinization of gender-related *behavior* (that is, *gender role and expression*); however, the correlation is only moderate, and considerable behavioral variability remains unaccounted for by prenatal androgen exposure (Jurgensen et al., 2007; Meyer-Bahlburg, Dolezal, Baker, Ehrhardt, & New, 2006). Notably, a similar correlation of prenatal hormone exposure with gender *identity* has not been demonstrated (e.g., Meyer-Bahlburg et al., 2004). This is underlined by the fact that people with the same (core) gender identity can vary widely in the degree of masculinization of their gender-related behavior.

Assessment and Treatment of Gender Dysphoria in People with Disorders of Sex Development

Very rarely are individuals with a DSD identified as having gender dysphoria *before* a DSD diagnosis has been made. Even so, a DSD diagnosis is typically apparent with an appropriate history and basic physical exam—both of which are part of a medical evaluation for the appropriateness of hormone therapy or surgical interventions for gender dysphoria. Mental health professionals should ask their clients presenting with gender dysphoria to have a physical exam, particularly if they are not currently seeing a primary care (or other health care) provider.

Most people with a DSD who are born with genital ambiguity do not develop gender dysphoria (e.g., Meyer-Bahlburg, Dolezal, et al., 2004; Wisniewski et al., 2004). However, some people with a DSD will develop chronic gender dysphoria and even undergo a change in their birth-assigned sex and/or their gender role (Meyer-Bahlburg, 2005; Wilson, 1999; Zucker, 1999). If there are persistent and strong indications that gender dysphoria is present, a comprehensive evaluation by clinicians skilled in the assessment and treatment of gender dysphoria is essential, irrespective of the patient's age. Detailed recommendations have been published for conducting such an assessment and for making treatment decisions to address gender dysphoria in the context of a DSD (Meyer-Bahlburg, 2011). Only after thorough assessment should steps be taken in the direction of changing a patient's birth-assigned sex or gender role.

Clinicians assisting these patients with treatment options to alleviate gender dysphoria may profit from the insights gained from providing care to patients without a DSD (Cohen-Kettenis, 2010).

However, certain criteria for treatment (e.g., age, duration of experience with living in the desired gender role) are usually not routinely applied to people with a DSD; rather, the criteria are interpreted in light of a patient's specific situation (Meyer-Bahlburg, 2011). In the context of a DSD, changes in birth-assigned sex and gender role have been made at any age between early elementary-school age and middle adulthood. Even genital surgery may be performed much earlier in these patients than in gender dysphoric individuals without a DSD if the surgery is well justified by the diagnosis, by the evidence-based gender-identity prognosis for the given syndrome and syndrome severity, and by the patient's wishes.

One reason for these treatment differences is that genital surgery in individuals with a DSD is quite common in infancy and adolescence. Infertility may already be present due to either early gonadal failure or to gonadectomy because of a malignancy risk. Even so, it is advisable for patients with a DSD to undergo a full social transition to another gender role only if there is a long-standing history of gender-atypical behavior, and if gender dysphoria and/or the desire to change one's gender role has been strong and persistent for a considerable period of time. Six months is the time period of full symptom expression required for the application of the gender dysphoria diagnosis proposed for *DSM-5* (Meyer-Bahlburg, 2011).

Additional Resources

The gender-relevant medical histories of people with a DSD are often complex. Their histories may include a great variety of inborn genetic, endocrine, and somatic atypicalities, as well as various hormonal, surgical, and other medical treatments. For this reason, many additional issues need to be considered in the psychosocial and medical care of such patients, regardless of the presence of gender dysphoria. Consideration of these issues is beyond what can be covered in the *SOC*. The interested reader is referred to existing publications (e.g., Cohen-Kettenis & Pfäfflin, 2003; Meyer-Bahlburg, 2002, 2008). Some families and patients also find it useful to consult or work with community support groups.

There is a very substantial medical literature on the medical management of patients with a DSD. Much of this literature has been produced by high-level specialists in pediatric endocrinology and urology, with input from specialized mental health professionals, especially in the area of gender. Recent international consensus conferences have addressed evidence-based care guidelines (including issues of gender and of genital surgery) for DSD in general (Hughes et al., 2006) and specifically for Congenital Adrenal Hyperplasia (Joint LWPES/ESPE CAH Working Group et al., 2002; Speiser et al., 2010). Others have addressed the research needs for DSD in general (Meyer-Bahlburg & Blizzard, 2004) and for selected syndromes such as 46,XXY (Simpson et al., 2003).

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APPENDIX A
GLOSSARY

Terminology in the area of health care for transsexual, transgender, and gender-nonconforming people is rapidly evolving; new terms are being introduced, and the definitions of existing terms are changing. Thus, there is often misunderstanding, debate, or disagreement about language in this field. Terms that may be unfamiliar or that have specific meanings in the *SOC* are defined below for the purpose of this document only. Others may adopt these definitions, but WPATH acknowledges that these terms may be defined differently in different cultures, communities, and contexts.

WPATH also acknowledges that many terms used in relation to this population are not ideal. For example, the terms *transsexual* and *transvestite*—and, some would argue, the more recent term *transgender*—have been applied to people in an objectifying fashion. Yet such terms have been more or less adopted by many people who are making their best effort to make themselves understood. By continuing to use these terms, WPATH intends only to ensure that concepts and processes are comprehensible, in order to facilitate the delivery of quality health care to transsexual, transgender, and gender-nonconforming people. WPATH remains open to new terminology that will further illuminate the experience of members of this diverse population and lead to improvements in health care access and delivery.

Bioidentical hormones: Hormones that are *structurally* identical to those found in the human body (ACOG Committee of Gynecologic Practice, 2005). The hormones used in bioidentical hormone therapy (BHT) are generally derived from plant sources and are structurally similar to endogenous human hormones, but they need to be commercially processed to become bioidentical.

Bioidentical compounded hormone therapy (BCHT): Use of hormones that are prepared, mixed, assembled, packaged, or labeled as a drug by a pharmacist and custom-made for a patient according to a physician's specifications. Government drug agency approval is not possible for each compounded product made for an individual consumer.

Cross-dressing (transvestism): Wearing clothing and adopting a gender role presentation that, in a given culture, is more typical of the other sex.

Disorders of sex development (DSD): Congenital conditions in which the development of chromosomal, gonadal, or anatomic sex is atypical. Some people strongly object to the "disorder" label and instead view these conditions as a matter of diversity (Diamond, 2009), preferring the terms *intersex* and *intersexuality*.

Female-to-Male (FtM): Adjective to describe individuals assigned female at birth who are changing or who have changed their body and/or gender role from birth-assigned female to a more masculine body or role.

Gender dysphoria: Distress that is caused by a discrepancy between a person's gender identity and that person's sex assigned at birth (and the associated gender role and/or primary and secondary sex characteristics) (Fisk, 1974; Knudson, De Cuypere, & Bockting, 2010b).

Gender identity: A person's intrinsic sense of being male (a boy or a man), female (a girl or woman), or an alternative gender (e.g., boygirl, girlboy, transgender, genderqueer, eunuch) (Bockting, 1999; Stoller, 1964).

Gender identity disorder: Formal diagnosis set forth by the *Diagnostic Statistical Manual of Mental Disorders, 4th Edition, Text Rev (DSM IV-TR)* (American Psychiatric Association, 2000). Gender identity disorder is characterized by a strong and persistent cross-gender identification and a persistent discomfort with one's sex or sense of inappropriateness in the gender role of that sex, causing clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Gender-nonconforming: Adjective to describe individuals whose gender identity, role, or expression differs from what is normative for their assigned sex in a given culture and historical period.

Gender role or expression: Characteristics in personality, appearance, and behavior that in a given culture and historical period are designated as masculine or feminine (that is, more typical of the male or female social role) (Ruble, Martin, & Berenbaum, 2006). While most individuals present socially in clearly masculine or feminine gender roles, some people present in an alternative gender role such as genderqueer or specifically transgender. All people tend to incorporate both masculine and feminine characteristics in their gender expression in varying ways and to varying degrees (Bockting, 2008).

Genderqueer: Identity label that may be used by individuals whose gender identity and/or role does not conform to a binary understanding of gender as limited to the categories of man or woman, male or female (Bockting, 2008).

Internalized transphobia: Discomfort with one's own transgender feelings or identity as a result of internalizing society's normative gender expectations.

Male-to-Female (MtF): Adjective to describe individuals assigned male at birth who are changing or who have changed their body and/or gender role from birth-assigned male to a more feminine body or role.

Natural hormones: Hormones that are derived from natural *sources* such as plants or animals. Natural hormones may or may not be bioidentical.

Sex: Sex is assigned at birth as male or female, usually based on the appearance of the external genitalia. When the external genitalia are ambiguous, other components of sex (internal genitalia, chromosomal and hormonal sex) are considered in order to assign sex (Grumbach, Hughes, & Conte, 2003; MacLaughlin & Donahoe, 2004; Money & Ehrhardt, 1972; Vilain, 2000). For most people, gender identity and expression are consistent with their sex assigned at birth; for transsexual, transgender, and gender-nonconforming individuals, gender identity or expression differ from their sex assigned at birth.

Sex reassignment surgery (gender affirmation surgery): Surgery to change primary and/or secondary sex characteristics to affirm a person's gender identity. Sex reassignment surgery can be an important part of medically necessary treatment to alleviate gender dysphoria.

Transgender: Adjective to describe a diverse group of individuals who cross or transcend culturally defined categories of gender. The gender identity of transgender people differs to varying degrees from the sex they were assigned at birth (Bockting, 1999).

Transition: Period of time when individuals change from the gender role associated with their sex assigned at birth to a different gender role. For many people, this involves learning how to live socially in another gender role; for others this means finding a gender role and expression that are most comfortable for them. Transition may or may not include feminization or masculinization of the body through hormones or other medical procedures. The nature and duration of transition are variable and individualized.

Transsexual: Adjective (often applied by the medical profession) to describe individuals who seek to change or who have changed their primary and/or secondary sex characteristics through femininizing or masculinizing medical interventions (hormones and/or surgery), typically accompanied by a permanent change in gender role.

APPENDIX B
OVERVIEW OF MEDICAL RISKS OF HORMONE THERAPY

The risks outlined below are based on two comprehensive, evidence-based literature reviews of masculinizing/feminizing hormone therapy (Feldman & Safer, 2009; Hembree et al., 2009), along with a large cohort study (Asscheman et al., 2011). These reviews can serve as detailed references for providers, along with other widely recognized, published clinical materials (e.g., Dahl et al., 2006; Ettner et al., 2007).

Risks of Feminizing Hormone Therapy (MtF)

Likely Increased Risk:

Venous thromboembolic disease

- Estrogen use increases the risk of venous thromboembolic events (VTE), particularly in patients who are over age 40, smokers, highly sedentary, obese, and who have underlying thrombophilic disorders.
- This risk is increased with the additional use of third generation progestins.
- This risk is decreased with use of the transdermal (versus oral) route of estradiol administration, which is recommended for patients at higher risk of VTE.

Cardiovascular, cerebrovascular disease

- Estrogen use increases the risk of cardiovascular events in patients over age 50 with underlying cardiovascular risk factors. Additional progestin use may increase this risk.

Lipids

- Oral estrogen use may markedly increase triglycerides in patients, increasing the risk of pancreatitis and cardiovascular events.
- Different routes of administration will have different metabolic effects on levels of HDL cholesterol, LDL cholesterol and lipoprotein(a).
- In general, clinical evidence suggests that MtF patients with pre-existing lipid disorders may benefit from the use of transdermal rather than oral estrogen.

Liver/gallbladder

- Estrogen and cyproterone acetate use may be associated with transient liver enzyme elevations and, rarely, clinical hepatotoxicity.
- Estrogen use increases the risk of cholelithiasis (gall stones) and subsequent cholecystectomy.

Possible Increased Risk:

Type 2 diabetes mellitus

- Feminizing hormone therapy, particularly estrogen, may increase the risk of type 2 diabetes, particularly among patients with a family history of diabetes or other risk factors for this disease.

Hypertension

- Estrogen use may increase blood pressure, but the effect on incidence of overt hypertension is unknown.
- Spironolactone reduces blood pressure and is recommended for at-risk or hypertensive patients desiring feminization.

Prolactinoma

- Estrogen use increases the risk of hyperprolactinemia among MtF patients in the first year of treatment, but this risk is unlikely thereafter.
- High-dose estrogen use may promote the clinical appearance of preexisting but clinically unapparent prolactinoma.

Inconclusive or No Increased Risk:

Items in this category include those that may present risk, but for which the evidence is so minimal that no clear conclusion can be reached.

Breast cancer

- MtF persons who have taken feminizing hormones do experience breast cancer, but it is unknown how their degree of risk compares to that of persons born with female genitalia.
- Longer duration of feminizing hormone exposure (i.e., number of years taking estrogen preparations), family history of breast cancer, obesity (BMI >35), and the use of progestins likely influence the level of risk.

Other Side Effects of Feminizing Therapy:

The following effects may be considered minor or even desired, depending on the patient, but are clearly associated with feminizing hormone therapy.

Fertility and sexual function

- Feminizing hormone therapy may impair fertility.
- Feminizing hormone therapy may decrease libido.
- Feminizing hormone therapy reduces nocturnal erections, with variable impact on sexually stimulated erections.

Risks of Anti-Androgen Medications:

Feminizing hormone regimens often include a variety of agents that affect testosterone production or action. These include GnRH agonists, progestins (including cyproterone acetate), spironolactone, and 5-alpha reductase inhibitors. An extensive discussion of the specific risks of these agents is beyond the scope of the *SOC*. However, both spironolactone and cyproterone acetate are widely used and deserve some comment.

Cyproterone acetate is a progestational compound with anti-androgenic properties (Gooren, 2005; Levy et al., 2003). Although widely used in Europe, it is not approved for use in the United States because of concerns about hepatotoxicity (Thole, Manso, Salgueiro, Revuelta, & Hidalgo, 2004). Spironolactone is commonly used as an anti-androgen in feminizing hormone therapy, particularly in regions where cyproterone is not approved for use (Dahl et al., 2006; Moore et al., 2003; Tangpricha et al., 2003). Spironolactone has a long history of use in treating hypertension and congestive heart failure. Its common side effects include hyperkalemia, dizziness, and gastrointestinal symptoms (*Physicians' Desk Reference*, 2007).

Risks of Masculinizing Hormone Therapy (FtM)

Likely Increased Risk:

Polycythemia

- Masculinizing hormone therapy involving testosterone or other androgenic steroids increases the risk of polycythemia (hematocrit > 50%), particularly in patients with other risk factors.
- Transdermal administration and adaptation of dosage may reduce this risk.

Weight gain/visceral fat

- Masculinizing hormone therapy can result in modest weight gain, with an increase in visceral fat.

Possible Increased Risk:

Lipids

- Testosterone therapy decreases HDL, but variably affects LDL and triglycerides.
- Supraphysiologic (beyond normal male range) serum levels of testosterone, often found with extended intramuscular dosing, may worsen lipid profiles, whereas transdermal administration appears to be more lipid neutral.
- Patients with underlying polycystic ovarian syndrome or dyslipidemia may be at increased risk of worsening dyslipidemia with testosterone therapy.

Liver

- Transient elevations in liver enzymes may occur with testosterone therapy.
- Hepatic dysfunction and malignancies have been noted with oral methyltestosterone. However, methyltestosterone is no longer available in most countries and should no longer be used.

Psychiatric

Masculinizing therapy involving testosterone or other androgenic steroids may increase the risk of hypomanic, manic, or psychotic symptoms in patients with underlying psychiatric disorders that include such symptoms. This adverse event appears to be associated with higher doses or supraphysiologic blood levels of testosterone.

Inconclusive or No Increased Risk:

Items in this category include those that may present risk, but for which the evidence is so minimal that no clear conclusion can be reached.

Osteoporosis

- Testosterone therapy maintains or increases bone mineral density among FtM patients prior to oophorectomy, at least in the first three years of treatment.
- There is an increased risk of bone density loss after oophorectomy, particularly if testosterone therapy is interrupted or insufficient. This includes patients utilizing solely oral testosterone.

Cardiovascular

- Masculinizing hormone therapy at normal physiologic doses does not appear to increase the risk of cardiovascular events among healthy patients.
- Masculinizing hormone therapy may increase the risk of cardiovascular disease in patients with underlying risks factors.

Hypertension

- Masculinizing hormone therapy at normal physiologic doses may increase blood pressure but does not appear to increase the risk of hypertension.
- Patients with risk factors for hypertension, such as weight gain, family history, or polycystic ovarian syndrome, may be at increased risk.

Type 2 diabetes mellitus

- Testosterone therapy does not appear to increase the risk of type 2 diabetes among FtM patients overall, unless other risk factors are present.
- Testosterone therapy may further increase the risk of type 2 diabetes in patients with other risk factors, such as significant weight gain, family history, and polycystic ovarian syndrome. There are no data that suggest or show an increase in risk in those with risk factors for dyslipidemia.

Breast cancer

- Testosterone therapy in FtM patients does not increase the risk of breast cancer.

Cervical cancer

- Testosterone therapy in FtM patients does not increase the risk of cervical cancer, although it may increase the risk of minimally abnormal Pap smears due to atrophic changes.

Ovarian cancer

- Analogous to persons born with female genitalia with elevated androgen levels, testosterone therapy in FtM patients may increase the risk of ovarian cancer, although evidence is limited.

Endometrial (uterine) cancer

- Testosterone therapy in FtM patients may increase the risk of endometrial cancer, although evidence is limited.

Other Side Effects of Masculinizing Therapy:

The following effects may be considered minor or even desired, depending on the patient, but are clearly associated with masculinization.

Fertility and sexual function

- Testosterone therapy in FtM patients reduces fertility, although the degree and reversibility are unknown.

- Testosterone therapy can induce permanent anatomic changes in the developing embryo or fetus.
- Testosterone therapy induces clitoral enlargement and increases libido.

Acne, androgenic alopecia

Acne and varying degrees of male pattern hair loss (androgenic alopecia) are common side effects of masculinizing hormone therapy.

APPENDIX C
SUMMARY OF CRITERIA FOR HORMONE THERAPY AND SURGERIES

As for all previous versions of the *SOC*, the criteria put forth in the *SOC* for hormone therapy and surgical treatments for gender dysphoria are clinical guidelines; individual health professionals and programs may modify them. Clinical departures from the *SOC* may come about because of a patient's unique anatomic, social, or psychological situation; an experienced health professional's evolving method of handling a common situation; a research protocol; lack of resources in various parts of the world; or the need for specific harm-reduction strategies. These departures should be recognized as such, explained to the patient, and documented through informed consent for quality patient care and legal protection. This documentation is also valuable to accumulate new data, which can be retrospectively examined to allow for health care—and the *SOC*—to evolve.

Criteria for Feminizing/Masculinizing Hormone Therapy (One Referral or Chart Documentation of Psychosocial Assessment)

1. Persistent, well-documented gender dysphoria;
2. Capacity to make a fully informed decision and to give consent for treatment;
3. Age of majority in a given country (if younger, follow the *SOC* for children and adolescents);
4. If significant medical or mental concerns are present, they must be reasonably well controlled.

Criteria for Breast/Chest Surgery (One Referral)

Mastectomy and Creation of a Male Chest in FtM Patients:

1. Persistent, well-documented gender dysphoria;
2. Capacity to make a fully informed decision and to give consent for treatment;
3. Age of majority in a given country (if younger, follow the *SOC* for children and adolescents);
4. If significant medical or mental health concerns are present, they must be reasonably well controlled.

Hormone therapy is not a prerequisite.

Breast Augmentation (Implants/Lipofilling) in MtF Patients:

1. Persistent, well-documented gender dysphoria;
2. Capacity to make a fully informed decision and to give consent for treatment;
3. Age of majority in a given country (if younger, follow the *SOC* for children and adolescents);
4. If significant medical or mental health concerns are present, they must be reasonably well controlled.

Although not an explicit criterion, it is recommended that MtF patients undergo feminizing hormone therapy (minimum 12 months) prior to breast augmentation surgery. The purpose is to maximize breast growth in order to obtain better surgical (aesthetic) results.

Criteria for Genital Surgery (Two Referrals)

Hysterectomy and Salpingo-Oophorectomy in FtM Patients and Orchiectomy in MtF Patients:

1. Persistent, well documented gender dysphoria;
2. Capacity to make a fully informed decision and to give consent for treatment;

3. Age of majority in a given country;

4. If significant medical or mental health concerns are present, they must be well controlled;

5. 12 continuous months of hormone therapy as appropriate to the patient's gender goals (unless hormones are not clinically indicated for the individual).

The aim of hormone therapy prior to gonadectomy is primarily to introduce a period of reversible estrogen or testosterone suppression, before a patient undergoes irreversible surgical intervention.

These criteria do not apply to patients who are having these surgical procedures for medical indications other than gender dysphoria.

Metoidioplasty or Phalloplasty in FtM Patients and Vaginoplasty in MtF Patients:

1. Persistent, well documented gender dysphoria;

2. Capacity to make a fully informed decision and to give consent for treatment;

3. Age of majority in a given country;

4. If significant medical or mental health concerns are present, they must be well controlled;

5. 12 continuous months of hormone therapy as appropriate to the patient's gender goals (unless hormones are not clinically indicated for the individual);

6. 12 continuous months of living in a gender role that is congruent with their gender identity.

Although not an explicit criterion, it is recommended that these patients also have regular visits with a mental health or other medical professional.

The criterion noted above for some types of genital surgeries—that is, that patients engage in 12 continuous months of living in a gender role that is congruent with their gender identity—is based on expert clinical consensus that this experience provides ample opportunity for patients to experience and socially adjust in their desired gender role, before undergoing irreversible surgery.

No. 22-11707

UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT

PAUL A. EKNES-TUCKER, et al.,
Plaintiffs-Appellees,

&

UNITED STATES OF AMERICA
Intervenor-Plaintiff-Appellee,

v.

GOVERNOR OF THE STATE OF ALABAMA, et al.,
Defendants-Appellants.

On Appeal from the United States District Court
for the Middle District of Alabama
Case No. 2:22-cv-184-LCB

APPELLANTS' APPENDIX VOLUME VIII OF XIII

Christopher Mills
SPERO LAW LLC
557 East Bay St.,
#22251
Charleston, SC 29451
(843) 606-0640
cmills@spero.law

Steve Marshall
Attorney General
Edmund G. LaCour Jr.
Solicitor General
A. Barrett Bowdre
Thomas A. Wilson
Deputy Solicitors General
James W. Davis
Deputy Attorney General
Benjamin M. Seiss
Assistant Attorney General
STATE OF ALABAMA
OFFICE OF THE ATTORNEY GENERAL
501 Washington Ave.
Montgomery, AL 36130
(334) 242-7300
Edmund.LaCour@AlabamaAG.gov

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APPENDIX D
EVIDENCE FOR CLINICAL OUTCOMES OF THERAPEUTIC APPROACHES

One of the real supports for any new therapy is an outcome analysis. Because of the controversial nature of sex reassignment surgery, this type of analysis has been very important. Almost all of the outcome studies in this area have been retrospective.

One of the first studies to examine the post-treatment psychosocial outcomes of transsexual patients was done in 1979 at Johns Hopkins University School of Medicine and Hospital (USA) (J. K. Meyer & Reter, 1979). This study focused on patients' occupational, educational, marital, and domiciliary stability. The results revealed several significant changes with treatment. These changes were not seen as positive; rather, they showed that many individuals who had entered the treatment program were no better off or were worse off in many measures after participation in the program. These findings resulted in closure of the treatment program at that hospital/medical school (Abramowitz, 1986).

Subsequently, a significant number of health professionals called for a standard for eligibility for sex reassignment surgery. This led to the formulation of the original *Standards of Care* of the Harry Benjamin International Gender Dysphoria Association (now WPATH) in 1979.

In 1981, Pauly published results from a large retrospective study of people who had undergone sex reassignment surgery. Participants in that study had much better outcomes: Among 83 FtM patients, 80.7% had a satisfactory outcome (i.e., patient self report of "improved social and emotional adjustment"), 6.0% unsatisfactory. Among 283 MtF patients, 71.4% had a satisfactory outcome, 8.1% unsatisfactory. This study included patients who were treated before the publication and use of the *Standards of Care*.

Since the *Standards of Care* have been in place, there has been a steady increase in patient satisfaction and decrease in dissatisfaction with the outcome of sex reassignment surgery. Studies conducted after 1996 focused on patients who were treated according to the *Standards of Care*. The findings of Rehman and colleagues (1999) and Krege and colleagues (2001) are typical of this body of work; none of the patients in these studies regretted having had surgery, and most reported being satisfied with the cosmetic and functional results of the surgery. Even patients who develop severe surgical complications seldom regret having undergone surgery. Quality of surgical results is one of the best predictors of the overall outcome of sex reassignment (Lawrence, 2003). The vast majority of follow-up studies have shown an undeniable beneficial effect of sex reassignment surgery on postoperative outcomes such as subjective well being, cosmesis, and sexual function (De Cuypere et al., 2005; Garaffa, Christopher, & Ralph, 2010; Klein & Gorzalka, 2009), although the specific magnitude of benefit is uncertain from

the currently available evidence. One study (Emory, Cole, Avery, Meyer, & Meyer, 2003) even showed improvement in patient income.

One troubling report (Newfield et al., 2006) documented lower scores on quality of life (measured with the SF-36) for FtM patients than for the general population. A weakness of that study is that it recruited its 384 participants by a general email rather than a systematic approach, and the degree and type of treatment were not recorded. Study participants who were taking testosterone had typically being doing so for less than 5 years. Reported quality of life was higher for patients who had undergone breast/chest surgery than for those who had not ($p<.001$). (A similar analysis was not done for genital surgery.) In other work, Kuhn and colleagues (2009) used the King's Health Questionnaire to assess the quality of life of 55 transsexual patients at 15 years after surgery. Scores were compared to those of 20 healthy female control patients who had undergone abdominal/pelvic surgery in the past. Quality of life scores for transsexual patients were the same or better than those of control patients for some subscales (emotions, sleep, incontinence, symptom severity, and role limitation), but worse in other domains (general health, physical limitation, and personal limitation).

Two long-term observational studies, both retrospective, compared the mortality and psychiatric morbidity of transsexual adults to those of general population samples (Asscheman et al., 2011; Dhejne et al., 2011). An analysis of data from the Swedish National Board of Health and Welfare information registry found that individuals who had received sex reassignment surgery (191 MtF and 133 FtM) had significantly higher rates of mortality, suicide, suicidal behavior, and psychiatric morbidity than those for a nontranssexual control group matched on age, immigrant status, prior psychiatric morbidity, and birth sex (Dhejne et al., 2011). Similarly, a study in the Netherlands reported a higher total mortality rate, including incidence of suicide, in both pre- and post-surgery transsexual patients (966 MtF and 365 MtF) than in the general population of that country (Asscheman et al., 2011). Neither of these studies questioned the efficacy of sex reassignment; indeed, both lacked an adequate comparison group of transsexuals who either did not receive treatment or who received treatment other than genital surgery. Moreover, transsexual people in these studies were treated as far back as the 1970s. However, these findings do emphasize the need to have good long-term psychological and psychiatric care available for this population. More studies are needed that focus on the outcomes of current assessment and treatment approaches for gender dysphoria.

It is difficult to determine the effectiveness of hormones alone in the relief of gender dysphoria. Most studies evaluating the effectiveness of masculinizing/feminizing hormone therapy on gender dysphoria have been conducted with patients who have also undergone sex reassignment surgery. Favorable effects of therapies that included both hormones and surgery were reported in a comprehensive review of over 3000 patients in 79 studies (mostly observational) conducted between 1961 and 1991 (Eldh, Berg, & Gustafsson, 1997; Gijs & Brewaeys, 2007; Murad et al., 2010; Pfäfflin & Junge, 1998). Patients operated on after 1986 did better than those before 1986; this reflects significant improvement in surgical complications (Eldh et al., 1997). Most patients have reported improved psychosocial outcomes, ranging between 87% for MtF patients and 97% for FtM patients (Green & Fleming, 1990).

Similar improvements were found in a Swedish study in which "almost all patients were satisfied with sex reassignment at 5 years, and 86% were assessed by clinicians at follow-up as stable or improved in global functioning" (Johansson, Sundbom, Höjerback, & Bodlund, 2010). Weaknesses of these earlier studies are their retrospective design and use of different criteria to evaluate outcomes.

A prospective study conducted in the Netherlands evaluated 325 consecutive adult and adolescent subjects seeking sex reassignment (Smith, Van Goozen, Kuiper, & Cohen-Kettenis, 2005). Patients who underwent sex reassignment therapy (both hormonal and surgical intervention) showed improvements in their mean gender dysphoria scores, measured by the Utrecht Gender Dysphoria Scale. Scores for body dissatisfaction and psychological function also improved in most categories. Fewer than 2% of patients expressed regret after therapy. This is the largest prospective study to affirm the results from retrospective studies that a combination of hormone therapy and surgery improves gender dysphoria and other areas of psychosocial functioning. There is a need for further research on the effects of hormone therapy without surgery, and without the goal of maximum physical feminization or masculinization.

Overall, studies have been reporting a steady improvement in outcomes as the field becomes more advanced. Outcome research has mainly focused on the outcome of sex reassignment surgery. In current practice there is a range of identity, role, and physical adaptations that could use additional follow-up or outcome research (Institute of Medicine, 2011).

APPENDIX E
DEVELOPMENT PROCESS FOR THE *STANDARDS OF CARE,* VERSION 7

The process of developing *Standards of Care, Version 7* began when an initial *SOC* "work group" was established in 2006. Members were invited to examine specific sections of *SOC, Version 6*. For each section, they were asked to review the relevant literature, identify where research was lacking and needed, and recommend potential revisions to the *SOC* as warranted by new evidence. Invited papers were submitted by the following authors: Aaron Devor, Walter Bockting, George Brown, Michael Brownstein, Peggy Cohen-Kettenis, Griet DeCuypere, Petra DeSutter, Jamie Feldman, Lin Fraser, Arlene Istar Lev, Stephen Levine, Walter Meyer, Heino Meyer-Bahlburg, Stan Monstrey, Loren Schechter, Mick van Trotsenburg, Sam Winter, and Ken Zucker. Some of these authors chose to add co-authors to assist them in their task.

Initial drafts of these papers were due June 1, 2007. Most were completed by September 2007, with the rest completed by the end of 2007. These manuscripts were then submitted to the *International*

Journal of Transgenderism (IJT). Each underwent the regular *IJT* peer review process. The final papers were published in Volume 11 (1–4) in 2009, making them available for discussion and debate.

After these articles were published, an *SOC* Revision Committee was established by the WPATH Board of Directors in 2010. The Revision Committee was first charged with debating and discussing the *IJT* background papers through a Google website. A subgroup of the Revision Committee was appointed by the Board of Directors to serve as the Writing Group. This group was charged with preparing the first draft of *SOC, Version 7* and continuing to work on revisions for consideration by the broader Revision Committee. The Board also appointed an International Advisory Group of transsexual, transgender, and gender-nonconforming individuals to give input on the revision.

A technical writer was hired to (1) review all of the recommendations for revision—both the original recommendations as outlined in the *IJT* articles and additional recommendations that emanated from the online discussion—and (2) create a survey to solicit further input on these potential revisions. From the survey results, the Writing Group was able to discern where these experts stood in terms of areas of agreement and areas in need of more discussion and debate. The technical writer then (3) created a very rough first draft of *SOC, Version 7* for the Writing Group to consider and build on.

The Writing Group met on March 4 and 5, 2011 in a face-to-face expert consultation meeting. They reviewed all recommended changes and debated and came to consensus on various controversial areas. Decisions were made based on the best available science and expert consensus. These decisions were incorporated into the draft, and additional sections were written by the Writing Group with the assistance of the technical writer.

The draft that emerged from the consultation meeting was then circulated among the Writing Group and finalized with the help of the technical writer. Once this initial draft was finalized, it was circulated among the broader *SOC* Revision Committee and the International Advisory Group. Discussion was opened up on the Google website and a conference call was held to resolve issues. Feedback from these groups was considered by the Writing Group, who then made further revisions. Two additional drafts were created and posted on the Google website for consideration by the broader *SOC* Revision Committee and the International Advisory Group. Upon completion of these three iterations of review and revision, the final document was presented to the WPATH Board of Directors for approval. The Board of Directors approved this version on September 14, 2011.

Funding

The *Standards of Care* revision process was made possible through a generous grant from the Tawani Foundation and a gift from an anonymous donor. These funds supported the following:

1. Costs of a professional technical writer;

2. Process of soliciting international input on proposed changes from gender identity professionals and the transgender community;

3. Working meeting of the Writing Group;

4. Process of gathering additional feedback and arriving at final expert consensus from the professional and transgender communities, the *Standards of Care, Version 7,* Revision Committee, and WPATH Board of Directors;

5. Costs of printing and distributing *Standards of Care, Version 7,* and posting a free downloadable copy on the WPATH website;

6. Plenary session to launch the *Standards of Care, Version 7,* at the 2011 WPATH Biennial Symposium in Atlanta, Georgia, USA.

Members of the *Standards of Care* Revision Committee†

Eli Coleman, PhD (USA)* - Committee chair
Richard Adler, PhD (USA)
Walter Bockting, PhD (USA)*
Marsha Botzer, MA (USA)*
George Brown, MD (USA)
Peggy Cohen-Kettenis, PhD (Netherlands)*
Griet DeCuypere, MD (Belgium)*
Aaron Devor, PhD (Canada)
Randall Ehrbar, PsyD (USA)
Randi Ettner, PhD (USA)
Evan Eyler, MD (USA)
Jamie Feldman, MD, PhD (USA)*
Lin Fraser, EdD (USA)*
Rob Garofalo, MD, MPH (USA)
Jamison Green, PhD, MFA (USA)*
Dan Karasic, MD (USA)
Gail Knudson, MD (Canada)*
Arlene Istar Lev, LCSW-R (USA)
Gal Mayer, MD (USA)
Walter Meyer, MD (USA)*
Heino Meyer-Bahlburg, Dr. rer.nat. (USA)
Stan Monstrey, MD, PhD (Belgium)*
Blaine Paxton Hall, MHS-CL, PA-C (USA)
Friedmann Pfäfflin, MD, PhD (Germany)
Katherine Rachlin, PhD (USA)
Bean Robinson, PhD (USA)
Loren Schechter, MD (USA)
Vin Tangpricha, MD, PhD (USA)
Mick van Trotsenburg, MD (Netherlands)
Anne Vitale, PhD (USA)
Sam Winter, PhD (Hong Kong)
Stephen Whittle, OBE (UK)
Kevan Wylie, MB, MD (UK)
Ken Zucker, PhD (Canada)

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* Writing Group member.
† All members of the *Standards of Care, Version 7 Revision Committee* donated their time to work on this revision.

International Advisory Group Selection Committee

Walter Bockting, PhD (USA)
Marsha Botzer, MA (USA)
Aaron Devor, PhD (Canada)
Randall Ehrbar, PsyD (USA)
Evan Eyler, MD (USA)
Jamison Green, PhD, MFA (USA)
Blaine Paxton Hall, MHS-CL, PA-C (USA)

International Advisory Group

Tamara Adrian, LGBT Rights Venezuela (Venezuela)
Craig Andrews, FtM Australia (Australia)
Christine Burns, MBE, Plain Sense Ltd (UK)
Naomi Fontanos, Society for Transsexual Women's Rights in the Phillipines (Phillipines)
Tone Marie Hansen, Harry Benjamin Resource Center (Norway)
Rupert Raj, Sherbourne Health Center (Canada)
Masae Torai, FtM Japan (Japan)
Kelley Winters, GID Reform Advocates (USA)

Technical Writer

Anne Marie Weber-Main, PhD (USA)

Editorial Assistance

Heidi Fall (USA)

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Endocrine Treatment of Gender-Dysphoric/ Gender-Incongruent Persons: An Endocrine Society* Clinical Practice Guideline

Wylie C. Hembree,[1] Peggy T. Cohen-Kettenis,[2] Louis Gooren,[3] Sabine E. Hannema,[4] Walter J. Meyer,[5] M. Hassan Murad,[6] Stephen M. Rosenthal,[7] Joshua D. Safer,[8] Vin Tangpricha,[9] and Guy G. T'Sjoen[10]

[1]New York Presbyterian Hospital, Columbia University Medical Center, New York, New York 10032 (Retired); [2]VU University Medical Center, 1007 MB Amsterdam, Netherlands (Retired); [3]VU University Medical Center, 1007 MB Amsterdam, Netherlands (Retired); [4]Leiden University Medical Center, 2300 RC Leiden, Netherlands; [5]University of Texas Medical Branch, Galveston, Texas 77555; [6]Mayo Clinic Evidence-Based Practice Center, Rochester, Minnesota 55905; [7]University of California San Francisco, Benioff Children's Hospital, San Francisco, California 94143; [8]Boston University School of Medicine, Boston, Massachusetts 02118; [9]Emory University School of Medicine and the Atlanta VA Medical Center, Atlanta, Georgia 30322; and [10]Ghent University Hospital, 9000 Ghent, Belgium

*Cosponsoring Associations: American Association of Clinical Endocrinologists, American Society of Andrology, European Society for Pediatric Endocrinology, European Society of Endocrinology, Pediatric Endocrine Society, and World Professional Association for Transgender Health.

Objective: To update the "Endocrine Treatment of Transsexual Persons: An Endocrine Society Clinical Practice Guideline," published by the Endocrine Society in 2009.

Participants: The participants include an Endocrine Society–appointed task force of nine experts, a methodologist, and a medical writer.

Evidence: This evidence-based guideline was developed using the Grading of Recommendations, Assessment, Development, and Evaluation approach to describe the strength of recommendations and the quality of evidence. The task force commissioned two systematic reviews and used the best available evidence from other published systematic reviews and individual studies.

Consensus Process: Group meetings, conference calls, and e-mail communications enabled consensus. Endocrine Society committees, members and cosponsoring organizations reviewed and commented on preliminary drafts of the guidelines.

Conclusion: Gender affirmation is multidisciplinary treatment in which endocrinologists play an important role. Gender-dysphoric/gender-incongruent persons seek and/or are referred to endocrinologists to develop the physical characteristics of the affirmed gender. They require a safe and effective hormone regimen that will (1) suppress endogenous sex hormone secretion determined by the person's genetic/gonadal sex and (2) maintain sex hormone levels within the normal range for the person's affirmed gender. Hormone treatment is not recommended for prepubertal gender-dysphoric/gender-incongruent persons. Those clinicians who recommend gender-affirming endocrine treatments—appropriately trained diagnosing clinicians (required), a mental health provider for adolescents (required) and mental health

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Abbreviations: BMD, bone mineral density; DSD, disorder/difference of sex development; DSM, Diagnostic and Statistical Manual of Mental Disorders; GD, gender dysphoria; GnRH, gonadotropin-releasing hormone; ICD, International Statistical Classification of Diseases and Related Health Problems; MHP, mental health professional; VTE, venous thromboembolism.

professional for adults (recommended)—should be knowledgeable about the diagnostic criteria and criteria for gender-affirming treatment, have sufficient training and experience in assessing psychopathology, and be willing to participate in the ongoing care throughout the endocrine transition. We recommend treating gender-dysphoric/gender-incongruent adolescents who have entered puberty at Tanner Stage G2/B2 by suppression with gonadotropin-releasing hormone agonists. Clinicians may add gender-affirming hormones after a multidisciplinary team has confirmed the persistence of gender dysphoria/gender incongruence and sufficient mental capacity to give informed consent to this partially irreversible treatment. Most adolescents have this capacity by age 16 years old. We recognize that there may be compelling reasons to initiate sex hormone treatment prior to age 16 years, although there is minimal published experience treating prior to 13.5 to 14 years of age. For the care of peripubertal youths and older adolescents, we recommend that an expert multidisciplinary team comprised of medical professionals and mental health professionals manage this treatment. The treating physician must confirm the criteria for treatment used by the referring mental health practitioner and collaborate with them in decisions about gender-affirming surgery in older adolescents. For adult gender-dysphoric/gender-incongruent persons, the treating clinicians (collectively) should have expertise in transgender-specific diagnostic criteria, mental health, primary care, hormone treatment, and surgery, as needed by the patient. We suggest maintaining physiologic levels of gender-appropriate hormones and monitoring for known risks and complications. When high doses of sex steroids are required to suppress endogenous sex steroids and/or in advanced age, clinicians may consider surgically removing natal gonads along with reducing sex steroid treatment. Clinicians should monitor both transgender males (female to male) and transgender females (male to female) for reproductive organ cancer risk when surgical removal is incomplete. Additionally, clinicians should persistently monitor adverse effects of sex steroids. For gender-affirming surgeries in adults, the treating physician must collaborate with and confirm the criteria for treatment used by the referring physician. Clinicians should avoid harming individuals (via hormone treatment) who have conditions other than gender dysphoria/gender incongruence and who may not benefit from the physical changes associated with this treatment. ***(J Clin Endocrinol Metab* 102: 3869–3903, 2017)**

Summary of Recommendations

1.0 Evaluation of youth and adults

1.1. We advise that only trained mental health professionals (MHPs) who meet the following criteria should diagnose gender dysphoria (GD)/gender incongruence in adults: (1) competence in using the Diagnostic and Statistical Manual of Mental Disorders (DSM) and/or the International Statistical Classification of Diseases and Related Health Problems (ICD) for diagnostic purposes, (2) the ability to diagnose GD/gender incongruence and make a distinction between GD/gender incongruence and conditions that have similar features (*e.g.*, body dysmorphic disorder), (3) training in diagnosing psychiatric conditions, (4) the ability to undertake or refer for appropriate treatment, (5) the ability to psychosocially assess the person's understanding, mental health, and social conditions that can impact gender-affirming hormone therapy, and (6) a practice of regularly attending relevant professional meetings. (Ungraded Good Practice Statement)

1.2. We advise that only MHPs who meet the following criteria should diagnose GD/gender incongruence in children and adolescents: (1) training in child and adolescent developmental psychology and psychopathology, (2) competence in using the DSM and/or the ICD for diagnostic purposes, (3) the ability to make a distinction between GD/gender incongruence and conditions that have similar features (*e.g.*, body dysmorphic disorder), (4) training in diagnosing psychiatric conditions, (5) the ability to undertake or refer for appropriate treatment, (6) the ability to psychosocially assess the person's understanding and social conditions that can impact gender-affirming hormone therapy, (7) a practice of regularly attending relevant professional meetings, and (8) knowledge of the criteria for puberty blocking and gender-affirming hormone treatment in adolescents. (Ungraded Good Practice Statement)

1.3. We advise that decisions regarding the social transition of prepubertal youths with GD/gender incongruence are made with the assistance of an MHP or another experienced professional. (Ungraded Good Practice Statement).

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1.4. We recommend against puberty blocking and gender-affirming hormone treatment in prepubertal children with GD/gender incongruence. (1 |⊕⊕◯◯)
1.5. We recommend that clinicians inform and counsel all individuals seeking gender-affirming medical treatment regarding options for fertility preservation prior to initiating puberty suppression in adolescents and prior to treating with hormonal therapy of the affirmed gender in both adolescents and adults. (1 |⊕⊕⊕◯)

2.0 Treatment of adolescents

2.1. We suggest that adolescents who meet diagnostic criteria for GD/gender incongruence, fulfill criteria for treatment, and are requesting treatment should initially undergo treatment to suppress pubertal development. (2 |⊕⊕◯◯)
2.2. We suggest that clinicians begin pubertal hormone suppression after girls and boys first exhibit physical changes of puberty. (2 |⊕⊕◯◯)
2.3. We recommend that, where indicated, GnRH analogues are used to suppress pubertal hormones. (1 |⊕⊕◯◯)
2.4. In adolescents who request sex hormone treatment (given this is a partly irreversible treatment), we recommend initiating treatment using a gradually increasing dose schedule after a multidisciplinary team of medical and MHPs has confirmed the persistence of GD/gender incongruence and sufficient mental capacity to give informed consent, which most adolescents have by age 16 years. (1 |⊕⊕◯◯).
2.5. We recognize that there may be compelling reasons to initiate sex hormone treatment prior to the age of 16 years in some adolescents with GD/gender incongruence, even though there are minimal published studies of gender-affirming hormone treatments administered before age 13.5 to 14 years. As with the care of adolescents ≥16 years of age, we recommend that an expert multidisciplinary team of medical and MHPs manage this treatment. (1 |⊕◯◯◯)
2.6. We suggest monitoring clinical pubertal development every 3 to 6 months and laboratory parameters every 6 to 12 months during sex hormone treatment. (2 |⊕⊕◯◯)

3.0 Hormonal therapy for transgender adults

3.1. We recommend that clinicians confirm the diagnostic criteria of GD/gender incongruence and the criteria for the endocrine phase of gender transition before beginning treatment. (1 |⊕⊕⊕◯)
3.2. We recommend that clinicians evaluate and address medical conditions that can be exacerbated by hormone depletion and treatment with sex hormones of the affirmed gender before beginning treatment. (1 |⊕⊕⊕◯)
3.3. We suggest that clinicians measure hormone levels during treatment to ensure that endogenous sex steroids are suppressed and administered sex steroids are maintained in the normal physiologic range for the affirmed gender. (2 |⊕⊕◯◯)
3.4. We suggest that endocrinologists provide education to transgender individuals undergoing treatment about the onset and time course of physical changes induced by sex hormone treatment. (2 |⊕◯◯◯)

4.0 Adverse outcome prevention and long-term care

4.1. We suggest regular clinical evaluation for physical changes and potential adverse changes in response to sex steroid hormones and laboratory monitoring of sex steroid hormone levels every 3 months during the first year of hormone therapy for transgender males and females and then once or twice yearly. (2 |⊕⊕◯◯)
4.2. We suggest periodically monitoring prolactin levels in transgender females treated with estrogens. (2 |⊕⊕◯◯)
4.3. We suggest that clinicians evaluate transgender persons treated with hormones for cardiovascular risk factors using fasting lipid profiles, diabetes screening, and/or other diagnostic tools. (2 |⊕⊕◯◯)
4.4. We recommend that clinicians obtain bone mineral density (BMD) measurements when risk factors for osteoporosis exist, specifically in those who stop sex hormone therapy after gonadectomy. (1 |⊕⊕◯◯)
4.5. We suggest that transgender females with no known increased risk of breast cancer follow breast-screening guidelines recommended for non-transgender females. (2 |⊕⊕◯◯)
4.6. We suggest that transgender females treated with estrogens follow individualized screening according to personal risk for prostatic disease and prostate cancer. (2 |⊕◯◯◯)
4.7. We advise that clinicians determine the medical necessity of including a total hysterectomy and oophorectomy as part of gender-affirming surgery. (Ungraded Good Practice Statement)

5.0 Surgery for sex reassignment and gender confirmation

5.1. We recommend that a patient pursue genital gender-affirming surgery only after the MHP and the clinician responsible for endocrine transition therapy both agree that surgery is medically necessary and would benefit the patient's overall health and/or well-being. (1 ⊕⊕◯◯)

5.2. We advise that clinicians approve genital gender-affirming surgery only after completion of at least 1 year of consistent and compliant hormone treatment, unless hormone therapy is not desired or medically contraindicated. (Ungraded Good Practice Statement)

5.3. We advise that the clinician responsible for endocrine treatment and the primary care provider ensure appropriate medical clearance of transgender individuals for genital gender-affirming surgery and collaborate with the surgeon regarding hormone use during and after surgery. (Ungraded Good Practice Statement)

5.4. We recommend that clinicians refer hormone-treated transgender individuals for genital surgery when: (1) the individual has had a satisfactory social role change, (2) the individual is satisfied about the hormonal effects, and (3) the individual desires definitive surgical changes. (1 ⊕◯◯◯)

5.5. We suggest that clinicians delay gender-affirming genital surgery involving gonadectomy and/or hysterectomy until the patient is at least 18 years old or legal age of majority in his or her country. (2 ⊕⊕◯◯).

5.6. We suggest that clinicians determine the timing of breast surgery for transgender males based upon the physical and mental health status of the individual. There is insufficient evidence to recommend a specific age requirement. (2 ⊕◯◯◯)

Changes Since the Previous Guideline

Both the current guideline and the one published in 2009 contain similar sections. Listed here are the sections contained in the current guideline and the corresponding number of recommendations: Introduction, Evaluation of Youth and Adults (5), Treatment of Adolescents (6), Hormonal Therapy for Transgender Adults (4), Adverse Outcomes Prevention and Long-term Care (7), and Surgery for Sex Reassignment and Gender Confirmation (6). The current introduction updates the diagnostic classification of "gender dysphoria/gender incongruence." It also reviews the development of "gender identity" and summarizes its natural development. The section on clinical evaluation of both youth and adults, defines in detail the professional qualifications required of those who diagnose and treat both adolescents and adults. We advise that decisions regarding the social transition of prepubertal youth are made with the assistance of a mental health professional or similarly experienced professional. We recommend against puberty blocking followed by gender-affirming hormone treatment of prepubertal children. Clinicians should inform pubertal children, adolescents, and adults seeking gender-confirming treatment of their options for fertility preservation. Prior to treatment, clinicians should evaluate the presence of medical conditions that may be worsened by hormone depletion and/or treatment. A multidisciplinary team, preferably composed of medical and mental health professionals, should monitor treatments. Clinicians evaluating transgender adults for endocrine treatment should confirm the diagnosis of persistent gender dysphoria/gender incongruence. Physicians should educate transgender persons regarding the time course of steroid-induced physical changes. Treatment should include periodic monitoring of hormone levels and metabolic parameters, as well as assessments of bone density and the impact upon prostate, gonads, and uterus. We also make recommendations for transgender persons who plan genital gender-affirming surgery.

Method of Development of Evidence-Based Clinical Practice Guidelines

The Clinical Guidelines Subcommittee (CGS) of the Endocrine Society deemed the diagnosis and treatment of individuals with GD/gender incongruence a priority area for revision and appointed a task force to formulate evidence-based recommendations. The task force followed the approach recommended by the Grading of Recommendations, Assessment, Development, and Evaluation group, an international group with expertise in the development and implementation of evidence-based guidelines (1). A detailed description of the grading scheme has been published elsewhere (2). The task force used the best available research evidence to develop the recommendations. The task force also used consistent language and graphical descriptions of both the strength of a recommendation and the quality of evidence. In terms of the strength of the recommendation, strong recommendations use the phrase "we recommend" and the number 1, and weak recommendations use the phrase "we suggest" and the number 2. Cross-filled circles indicate the quality of the evidence, such that ⊕◯◯◯ denotes very low–quality evidence; ⊕⊕◯◯, low quality; ⊕⊕⊕◯, moderate quality; and ⊕⊕⊕⊕, high quality. The task force has confidence that persons who receive care according to the strong recommendations will derive, on average, more benefit than harm. Weak recommendations require more careful consideration of the person's circumstances, values, and preferences to determine the best course of action. Linked to each recommendation is a description of the evidence and the

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values that the task force considered in making the recommendation. In some instances, there are remarks in which the task force offers technical suggestions for testing conditions, dosing, and monitoring. These technical comments reflect the best available evidence applied to a typical person being treated. Often this evidence comes from the unsystematic observations of the task force and their preferences; therefore, one should consider these remarks as suggestions.

In this guideline, the task force made several statements to emphasize the importance of shared decision-making, general preventive care measures, and basic principles of the treatment of transgender persons. They labeled these "Ungraded Good Practice Statement." Direct evidence for these statements was either unavailable or not systematically appraised and considered out of the scope of this guideline. The intention of these statements is to draw attention to these principles.

The Endocrine Society maintains a rigorous conflict-of-interest review process for developing clinical practice guidelines. All task force members must declare any potential conflicts of interest by completing a conflict-of-interest form. The CGS reviews all conflicts of interest before the Society's Council approves the members to participate on the task force and periodically during the development of the guideline. All others participating in the guideline's development must also disclose any conflicts of interest in the matter under study, and most of these participants must be without any conflicts of interest. The CGS and the task force have reviewed all disclosures for this guideline and resolved or managed all identified conflicts of interest.

Conflicts of interest are defined as remuneration in any amount from commercial interests; grants; research support; consulting fees; salary; ownership interests [*e.g.*, stocks and stock options (excluding diversified mutual funds)]; honoraria and other payments for participation in speakers' bureaus, advisory boards, or boards of directors; and all other financial benefits. Completed forms are available through the Endocrine Society office.

The Endocrine Society provided the funding for this guideline; the task force received no funding or remuneration from commercial or other entities.

Commissioned Systematic Review

The task force commissioned two systematic reviews to support this guideline. The first one aimed to summarize the available evidence on the effect of sex steroid use in transgender individuals on lipids and cardiovascular outcomes. The review identified 29 eligible studies at moderate risk of bias. In transgender males (female to male), sex steroid therapy was associated with a statistically significant increase in serum triglycerides and low-density lipoprotein cholesterol levels. High-density lipoprotein cholesterol levels decreased significantly across all follow-up time periods. In transgender females (male to female), serum triglycerides were significantly higher without any changes in other parameters. Few myocardial infarction, stroke, venous thromboembolism (VTE), and death events were reported. These events were more frequent in transgender females. However, the quality of the evidence was low. The second review summarized the available evidence regarding the effect of sex steroids on bone health in transgender individuals and identified 13 studies. In transgender males, there was no statistically significant difference in the lumbar spine, femoral neck, or total hip BMD at 12 and 24 months compared with baseline values before initiating masculinizing hormone therapy. In transgender females, there was a statistically significant increase in lumbar spine BMD at 12 months and 24 months compared with baseline values before initiation of feminizing hormone therapy. There was minimal information on fracture rates. The quality of evidence was also low.

Introduction

Throughout recorded history (in the absence of an endocrine disorder) some men and women have experienced confusion and anguish resulting from rigid, forced conformity to sexual dimorphism. In modern history, there have been numerous ongoing biological, psychological, cultural, political, and sociological debates over various aspects of gender variance. The 20th century marked the emergence of a social awakening for men and women with the belief that they are "trapped" in the wrong body (3). Magnus Hirschfeld and Harry Benjamin, among others, pioneered the medical responses to those who sought relief from and a resolution to their profound discomfort. Although the term transsexual became widely known after Benjamin wrote "The Transsexual Phenomenon" (4), it was Hirschfeld who coined the term "transsexual" in 1923 to describe people who want to live a life that corresponds with their experienced gender vs their designated gender (5). Magnus Hirschfeld (6) and others (4, 7) have described other types of trans phenomena besides transsexualism. These early researchers proposed that the gender identity of these people was located somewhere along a unidimensional continuum. This continuum ranged from all male through "something in between" to all female. Yet such a classification does not take into account that people may have gender identities outside this continuum. For instance, some experience themselves as having both a male and female gender identity, whereas others completely renounce any gender classification (8, 9). There are also reports of individuals experiencing a continuous and rapid involuntary alternation between a male and female identity (10) or men who do not experience themselves as men but do not want to live as women (11, 12). In some countries, (*e.g.*, Nepal, Bangladesh, and Australia), these nonmale or nonfemale genders are officially recognized (13). Specific treatment protocols, however, have not yet been developed for these groups.

Instead of the term transsexualism, the current classification system of the American Psychiatric Association uses the term gender dysphoria in its diagnosis of persons who are not satisfied with their designated gender (14). The current version of the World Health Organization's ICD-10 still uses the term transsexualism when diagnosing adolescents and adults. However, for the ICD-11, the World Health Organization has proposed using the term "gender incongruence" (15).

Treating persons with GD/gender incongruence (15) was previously limited to relatively ineffective elixirs or creams. However, more effective endocrinology-based treatments became possible with the availability of testosterone in 1935 and diethylstilbestrol in 1938. Reports of individuals with GD/gender incongruence who were treated with hormones and gender-affirming surgery appeared in the press during the second half of the 20th century. The Harry Benjamin International Gender Dysphoria Association was founded in September 1979 and is now called the World Professional Association for Transgender Health (WPATH). WPATH published its first Standards of Care in 1979. These standards have since been regularly updated, providing guidance for treating persons with GD/gender incongruence (16).

Prior to 1975, few peer-reviewed articles were published concerning endocrine treatment of transgender persons. Since then, more than two thousand articles about various aspects of transgender care have appeared.

It is the purpose of this guideline to make detailed recommendations and suggestions, based on existing medical literature and clinical experience, that will enable treating physicians to maximize benefit and minimize risk when caring for individuals diagnosed with GD/gender incongruence.

In the future, we need more rigorous evaluations of the effectiveness and safety of endocrine and surgical protocols. Specifically, endocrine treatment protocols for GD/gender incongruence should include the careful assessment of the following: (1) the effects of prolonged delay of puberty in adolescents on bone health, gonadal function, and the brain (including effects on cognitive, emotional, social, and sexual development); (2) the effects of treatment in adults on sex hormone levels; (3) the requirement for and the effects of progestins and other agents used to suppress endogenous sex steroids during treatment; and (4) the risks and benefits of gender-affirming hormone treatment in older transgender people.

To successfully establish and enact these protocols, a commitment of mental health and endocrine investigators is required to collaborate in long-term, large-scale studies across countries that use the same diagnostic and inclusion criteria, medications, assay methods, and response assessment tools (*e.g.*, the European Network for the Investigation of Gender Incongruence) (17, 18).

Terminology and its use vary and continue to evolve. Table 1 contains the definitions of terms as they are used throughout this guideline.

Biological Determinants of Gender Identity Development

One's self-awareness as male or female changes gradually during infant life and childhood. This process of cognitive and affective learning evolves with interactions with parents, peers, and environment. A fairly accurate timetable exists outlining the steps in this process (19). Normative psychological literature, however, does not address if and when gender identity becomes crystallized and what factors contribute to the development of a gender identity that is not congruent with the gender of rearing. Results of studies from a variety of biomedical disciplines—genetic, endocrine, and neuroanatomic—support the concept that gender identity and/or gender expression (20) likely reflect a complex interplay of biological, environmental, and cultural factors (21, 22).

With respect to endocrine considerations, studies have failed to find differences in circulating levels of sex steroids between transgender and nontransgender individuals (23). However, studies in individuals with a disorder/difference of sex development (DSD) have informed our understanding of the role that hormones may play in gender identity outcome, even though most persons with GD/gender incongruence do not have a DSD. For example, although most 46,XX adult individuals with virilizing congenital adrenal hyperplasia caused by mutations in *CYP21A2* reported a female gender identity, the prevalence of GD/gender incongruence was much greater in this group than in the general population without a DSD. This supports the concept that there is a role for prenatal/postnatal androgens in gender development (24–26), although some studies indicate that prenatal androgens are more likely to affect gender behavior and sexual orientation rather than gender identity *per se* (27, 28).

Researchers have made similar observations regarding the potential role of androgens in the development of gender identity in other individuals with DSD. For example, a review of two groups of 46,XY persons, each with androgen synthesis deficiencies and female raised, reported transgender male (female-to-male) gender role changes in 56% to 63% and 39% to 64% of patients, respectively (29). Also, in 46,XY female-raised individuals with cloacal

Table 1. Definitions of Terms Used in This Guideline

Biological sex, biological male or female: These terms refer to physical aspects of maleness and femaleness. As these may not be in line with each other (*e.g.*, a person with XY chromosomes may have female-appearing genitalia), the terms biological sex and biological male or female are imprecise and should be avoided.
Cisgender: This means not transgender. An alternative way to describe individuals who are not transgender is "non-transgender people."
Gender-affirming (hormone) treatment: See "gender reassignment"
Gender dysphoria: This is the distress and unease experienced if gender identity and designated gender are not completely congruent (see Table 2). In 2013, the American Psychiatric Association released the fifth edition of the DSM-5, which replaced "gender identity disorder" with "gender dysphoria" and changed the criteria for diagnosis.
Gender expression: This refers to external manifestations of gender, expressed through one's name, pronouns, clothing, haircut, behavior, voice, or body characteristics. Typically, transgender people seek to make their gender expression align with their gender identity, rather than their designated gender.
Gender identity/experienced gender: This refers to one's internal, deeply held sense of gender. For transgender people, their gender identity does not match their sex designated at birth. Most people have a gender identity of man or woman (or boy or girl). For some people, their gender identity does not fit neatly into one of those two choices. Unlike gender expression (see below), gender identity is not visible to others.
Gender identity disorder: This is the term used for GD/gender incongruence in previous versions of DSM (see "gender dysphoria"). The ICD-10 still uses the term for diagnosing child diagnoses, but the upcoming ICD-11 has proposed using "gender incongruence of childhood."
Gender incongruence: This is an umbrella term used when the gender identity and/or gender expression differs from what is typically associated with the designated gender. Gender incongruence is also the proposed name of the gender identity–related diagnoses in ICD-11. Not all individuals with gender incongruence have gender dysphoria or seek treatment.
Gender variance: See "gender incongruence"
Gender reassignment: This refers to the treatment procedure for those who want to adapt their bodies to the experienced gender by means of hormones and/or surgery. This is also called gender-confirming or gender-affirming treatment.
Gender-reassignment surgery (gender-confirming/gender-affirming surgery): These terms refer only to the surgical part of gender-confirming/gender-affirming treatment.
Gender role: This refers to behaviors, attitudes, and personality traits that a society (in a given culture and historical period) designates as masculine or feminine and/or that society associates with or considers typical of the social role of men or women.
Sex designated at birth: This refers to sex assigned at birth, usually based on genital anatomy.
Sex: This refers to attributes that characterize biological maleness or femaleness. The best known attributes include the sex-determining genes, the sex chromosomes, the H-Y antigen, the gonads, sex hormones, internal and external genitalia, and secondary sex characteristics.
Sexual orientation: This term describes an individual's enduring physical and emotional attraction to another person. Gender identity and sexual orientation are not the same. Irrespective of their gender identity, transgender people may be attracted to women (gynephilic), attracted to men (androphilic), bisexual, asexual, or queer.
Transgender: This is an umbrella term for people whose gender identity and/or gender expression differs from what is typically associated with their sex designated at birth. Not all transgender individuals seek treatment.
Transgender male (also: trans man, female-to-male, transgender male): This refers to individuals assigned female at birth but who identify and live as men.
Transgender woman (also: trans woman, male-to female, transgender female): This refers to individuals assigned male at birth but who identify and live as women.
Transition: This refers to the process during which transgender persons change their physical, social, and/or legal characteristics consistent with the affirmed gender identity. Prepubertal children may choose to transition socially.
Transsexual: This is an older term that originated in the medical and psychological communities to refer to individuals who have permanently transitioned through medical interventions or desired to do so.

exstrophy and penile agenesis, the occurrence of transgender male changes was significantly more prevalent than in the general population (30, 31). However, the fact that a high percentage of individuals with the same conditions did not change gender suggests that cultural factors may play a role as well.

With respect to genetics and gender identity, several studies have suggested heritability of GD/gender incongruence (32, 33). In particular, a study by Heylens *et al.* (33) demonstrated a 39.1% concordance rate for gender identity disorder (based on the DSM-IV criteria) in 23 monozygotic twin pairs but no concordance in 21 same-sex dizygotic or seven opposite-sex twin pairs. Although numerous investigators have sought to identify specific genes associated with GD/gender incongruence, such studies have been inconsistent and without strong statistical significance (34–38).

Studies focusing on brain structure suggest that the brain phenotypes of people with GD/gender incongruence differ in various ways from control males and females, but that there is not a complete sex reversal in brain structures (39).

In summary, although there is much that is still unknown with respect to gender identity and its expression, compelling studies support the concept that biologic factors, in addition to environmental factors, contribute to this fundamental aspect of human development.

Natural History of Children With GD/Gender Incongruence

With current knowledge, we cannot predict the psychosexual outcome for any specific child. Prospective follow-up studies show that childhood GD/gender incongruence does not invariably persist into adolescence and adulthood (so-called "desisters"). Combining all outcome studies to date, the GD/gender incongruence of a minority of prepubertal children appears to persist in adolescence (20, 40). In adolescence, a significant number of these desisters identify as homosexual or bisexual. It may be that children who only showed some gender nonconforming characteristics have been included in the follow-up studies, because the DSM-IV text revision criteria for a diagnosis were rather broad. However, the persistence of GD/gender incongruence into adolescence is more likely if it had been extreme in childhood (41, 42). With the newer, stricter criteria of the DSM-5 (Table 2), persistence rates may well be different in future studies.

1.0 Evaluation of Youth and Adults

Gender-affirming treatment is a multidisciplinary effort. After evaluation, education, and diagnosis, treatment may include mental health care, hormone therapy, and/or surgical therapy. Together with an MHP, hormone-prescribing clinicians should examine the psychosocial impact of the potential changes on people's lives, including mental health, friends, family, jobs, and their role in society. Transgender individuals should be encouraged to experience living in the new gender role and assess whether this improves their quality of life. Although the focus of this guideline is gender-affirming hormone therapy, collaboration with appropriate professionals responsible for each aspect of treatment maximizes a successful outcome.

Diagnostic assessment and mental health care

GD/gender incongruence may be accompanied with psychological or psychiatric problems (43–51). It is therefore necessary that clinicians who prescribe hormones and are involved in diagnosis and psychosocial assessment meet the following criteria: (1) are competent in using the DSM and/or the ICD for diagnostic purposes, (2) are able to diagnose GD/gender incongruence and make a distinction between GD/gender incongruence and conditions that have similar features (*e.g.*, body dysmorphic disorder), (3) are trained in diagnosing psychiatric conditions, (4) undertake or refer for appropriate treatment, (5) are able to do a psychosocial assessment of the patient's understanding, mental health, and social conditions that can impact gender-affirming hormone therapy, and (6) regularly attend relevant professional meetings.

Because of the psychological vulnerability of many individuals with GD/gender incongruence, it is important that mental health care is available before, during, and sometimes also after transitioning. For children and adolescents, an MHP who has training/experience in child and adolescent gender development (as well as child and adolescent psychopathology) should make the diagnosis, because assessing GD/gender incongruence in children and adolescents is often extremely complex.

During assessment, the clinician obtains information from the individual seeking gender-affirming treatment. In the case

Table 2. DSM-5 Criteria for Gender Dysphoria in Adolescents and Adults

A. A marked incongruence between one's experienced/expressed gender and natal gender of at least 6 mo in duration, as manifested by at least two of the following:
   1. A marked incongruence between one's experienced/expressed gender and primary and/or secondary sex characteristics (or in young adolescents, the anticipated secondary sex characteristics)
   2. A strong desire to be rid of one's primary and/or secondary sex characteristics because of a marked incongruence with one's experienced/expressed gender (or in young adolescents, a desire to prevent the development of the anticipated secondary sex characteristics)
   3. A strong desire for the primary and/or secondary sex characteristics of the other gender
   4. A strong desire to be of the other gender (or some alternative gender different from one's designated gender)
   5. A strong desire to be treated as the other gender (or some alternative gender different from one's designated gender)
   6. A strong conviction that one has the typical feelings and reactions of the other gender (or some alternative gender different from one's designated gender)

B. The condition is associated with clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Specify if:
   1. The condition exists with a disorder of sex development.
   2. The condition is posttransitional, in that the individual has transitioned to full-time living in the desired gender (with or without legalization of gender change) and has undergone (or is preparing to have) at least one sex-related medical procedure or treatment regimen—namely, regular sex hormone treatment or gender reassignment surgery confirming the desired gender (*e.g.*, penectomy, vaginoplasty in natal males; mastectomy or phalloplasty in natal females).

Reference: American Psychiatric Association (14).

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of adolescents, the clinician also obtains information from the parents or guardians regarding various aspects of the child's general and psychosexual development and current functioning. On the basis of this information, the clinician:

- decides whether the individual fulfills criteria for treatment (see Tables 2 and 3) for GD/gender incongruence (DSM-5) or transsexualism (DSM-5 and/or ICD-10);
- informs the individual about the possibilities and limitations of various kinds of treatment (hormonal/surgical and nonhormonal), and if medical treatment is desired, provides correct information to prevent unrealistically high expectations;
- assesses whether medical interventions may result in unfavorable psychological and social outcomes.

In cases in which severe psychopathology, circumstances, or both seriously interfere with the diagnostic work or make satisfactory treatment unlikely, clinicians should assist the adolescent in managing these other issues. Literature on postoperative regret suggests that besides poor quality of surgery, severe psychiatric comorbidity and lack of support may interfere with positive outcomes (52–56).

For adolescents, the diagnostic procedure usually includes a complete psychodiagnostic assessment (57) and an assessment of the decision-making capability of the youth. An evaluation to assess the family's ability to endure stress, give support, and deal with the complexities of the adolescent's situation should be part of the diagnostic phase (58).

Social transitioning

A change in gender expression and role (which may involve living part time or full time in another gender role that is consistent with one's gender identity) may test the person's resolve, the capacity to function in the affirmed gender, and the adequacy of social, economic, and psychological supports. It assists both the individual and the clinician in their judgments about how to proceed (16). During social transitioning, the person's feelings about the social transformation (including coping with the responses of others) is a major focus of the counseling. The optimal timing for social transitioning may differ between individuals. Sometimes people wait until they start gender-affirming hormone treatment to make social transitioning easier, but individuals increasingly start social transitioning long before they receive medically supervised, gender-affirming hormone treatment.

Criteria

Adolescents and adults seeking gender-affirming hormone treatment and surgery should satisfy certain criteria before proceeding (16). Criteria for gender-affirming hormone therapy for adults are in Table 4, and criteria for gender-affirming hormone therapy for adolescents are in Table 5. Follow-up studies in adults meeting these criteria indicate a high satisfaction rate with treatment (59). However, the quality of evidence is usually low. A few follow-up studies on adolescents who fulfilled these criteria also indicated good treatment results (60–63).

Recommendations for Those Involved in the Gender-Affirming Hormone Treatment of Individuals With GD/Gender Incongruence

1.1. We advise that only trained MHPs who meet the following criteria should diagnose GD/gender incongruence in adults: (1) competence in using the DSM and/or the ICD for diagnostic purposes, (2) the ability to diagnose GD/gender incongruence and make a distinction between GD/gender incongruence and conditions that have similar features (*e.g.*, body dysmorphic disorder), (3) training in diagnosing psychiatric conditions, (4) the ability to undertake or refer for appropriate treatment, (5) the ability to psychosocially assess the person's understanding, mental health, and social conditions that can impact gender-affirming hormone therapy, and (6) a practice of regularly attending relevant professional meetings. (Ungraded Good Practice Statement)

1.2. We advise that only MHPs who meet the following criteria should diagnose GD/gender incongruence in children and adolescents: (1) training in child and adolescent developmental psychology and psychopathology, (2) competence in using the DSM and/or ICD for diagnostic

Table 3. ICD-10 Criteria for Transsexualism

Transsexualism (F64.0) has three criteria:
1. The desire to live and be accepted as a member of the opposite sex, usually accompanied by the wish to make his or her body as congruent as possible with the preferred sex through surgery and hormone treatments.
2. The transsexual identity has been present persistently for at least 2 y.
3. The disorder is not a symptom of another mental disorder or a genetic, DSD, or chromosomal abnormality.

Table 4. Criteria for Gender-Affirming Hormone Therapy for Adults

1. Persistent, well-documented gender dysphoria/gender incongruence
2. The capacity to make a fully informed decision and to consent for treatment
3. The age of majority in a given country (if younger, follow the criteria for adolescents)
4. Mental health concerns, if present, must be reasonably well controlled

Reproduced from World Professional Association for Transgender Health (16).

purposes, (3) the ability to make a distinction between GD/gender incongruence and conditions that have similar features (*e.g.*, body dysmorphic disorder), (4) training in diagnosing psychiatric conditions, (5) the ability to undertake or refer for appropriate treatment, (6) the ability to psychosocially assess the person's understanding and social conditions that can impact gender-affirming hormone therapy, (7) a practice of regularly attending relevant professional meetings, and (8) knowledge of the criteria for puberty blocking and gender-affirming hormone treatment in adolescents. (Ungraded Good Practice Statement)

Evidence

Individuals with gender identity issues may have psychological or psychiatric problems (43–48, 50, 51, 64, 65). It is therefore necessary that clinicians making the diagnosis are able to make a distinction between GD/gender incongruence and conditions that have similar features. Examples of conditions with similar features are body dysmorphic disorder, body identity integrity disorder (a condition in which individuals have a sense that their anatomical configuration as an able-bodied person is somehow wrong or inappropriate) (66), or certain forms of eunuchism (in which a person is preoccupied with or engages in castration and/or penectomy for

Table 5. Criteria for Gender-Affirming Hormone Therapy for Adolescents

Adolescents are eligible for GnRH agonist treatment if:

1. A qualified MHP has confirmed that:
- the adolescent has demonstrated a long-lasting and intense pattern of gender nonconformity or gender dysphoria (whether suppressed or expressed),
- gender dysphoria worsened with the onset of puberty,
- any coexisting psychological, medical, or social problems that could interfere with treatment (*e.g.*, that may compromise treatment adherence) have been addressed, such that the adolescent's situation and functioning are stable enough to start treatment,
- the adolescent has sufficient mental capacity to give informed consent to this (reversible) treatment,

2. And the adolescent:
- has been informed of the effects and side effects of treatment (including potential loss of fertility if the individual subsequently continues with sex hormone treatment) and options to preserve fertility,
- has given informed consent and (particularly when the adolescent has not reached the age of legal medical consent, depending on applicable legislation) the parents or other caretakers or guardians have consented to the treatment and are involved in supporting the adolescent throughout the treatment process,

3. And a pediatric endocrinologist or other clinician experienced in pubertal assessment
- agrees with the indication for GnRH agonist treatment,
- has confirmed that puberty has started in the adolescent (Tanner stage ≥G2/B2),
- has confirmed that there are no medical contraindications to GnRH agonist treatment.

Adolescents are eligible for subsequent sex hormone treatment if:

1. A qualified MHP has confirmed:
- the persistence of gender dysphoria,
- any coexisting psychological, medical, or social problems that could interfere with treatment (*e.g.*, that may compromise treatment adherence) have been addressed, such that the adolescent's situation and functioning are stable enough to start sex hormone treatment,
- the adolescent has sufficient mental capacity (which most adolescents have by age 16 years) to estimate the consequences of this (partly) irreversible treatment, weigh the benefits and risks, and give informed consent to this (partly) irreversible treatment,

2. And the adolescent:
- has been informed of the (irreversible) effects and side effects of treatment (including potential loss of fertility and options to preserve fertility),
- has given informed consent and (particularly when the adolescent has not reached the age of legal medical consent, depending on applicable legislation) the parents or other caretakers or guardians have consented to the treatment and are involved in supporting the adolescent throughout the treatment process,

3. And a pediatric endocrinologist or other clinician experienced in pubertal induction:
- agrees with the indication for sex hormone treatment,
- has confirmed that there are no medical contraindications to sex hormone treatment.

Reproduced from World Professional Association for Transgender Health (16).

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reasons that are not gender identity related) (11). Clinicians should also be able to diagnose psychiatric conditions accurately and ensure that these conditions are treated appropriately, particularly when the conditions may complicate treatment, affect the outcome of gender-affirming treatment, or be affected by hormone use.

Values and preferences

The task force placed a very high value on avoiding harm from hormone treatment in individuals who have conditions other than GD/gender incongruence and who may not benefit from the physical changes associated with this treatment and placed a low value on any potential benefit these persons believe they may derive from hormone treatment. This justifies the good practice statement.

1.3. We advise that decisions regarding the social transition of prepubertal youths with GD/gender incongruence are made with the assistance of an MHP or another experienced professional. (Ungraded Good Practice Statement).

1.4. We recommend against puberty blocking and gender-affirming hormone treatment in prepubertal children with GD/gender incongruence. (1 |⊕⊕◯◯)

Evidence

In most children diagnosed with GD/gender incongruence, it did not persist into adolescence. The percentages differed among studies, probably dependent on which version of the DSM clinicians used, the patient's age, the recruitment criteria, and perhaps cultural factors. However, the large majority (about 85%) of prepubertal children with a childhood diagnosis did not remain GD/gender incongruent in adolescence (20). If children have completely socially transitioned, they may have great difficulty in returning to the original gender role upon entering puberty (40). Social transition is associated with the persistence of GD/gender incongruence as a child progresses into adolescence. It may be that the presence of GD/gender incongruence in prepubertal children is the earliest sign that a child is destined to be transgender as an adolescent/adult (20). However, social transition (in addition to GD/gender incongruence) has been found to contribute to the likelihood of persistence.

This recommendation, however, does not imply that children should be discouraged from showing gender-variant behaviors or should be punished for exhibiting such behaviors. In individual cases, an early complete social transition may result in a more favorable outcome, but there are currently no criteria to identify the GD/gender-incongruent children to whom this applies. At the present time, clinical experience suggests that persistence of GD/gender incongruence can only be reliably assessed after the first signs of puberty.

Values and preferences

The task force placed a high value on avoiding harm with gender-affirming hormone therapy in prepubertal children with GD/gender incongruence. This justifies the strong recommendation in the face of low-quality evidence.

1.5. We recommend that clinicians inform and counsel all individuals seeking gender-affirming medical treatment regarding options for fertility preservation prior to initiating puberty suppression in adolescents and prior to treating with hormonal therapy of the affirmed gender in both adolescents and adults. (1 |⊕⊕⊕◯)

Remarks

Persons considering hormone use for gender affirmation need adequate information about this treatment in general and about fertility effects of hormone treatment in particular to make an informed and balanced decision (67, 68). Because young adolescents may not feel qualified to make decisions about fertility and may not fully understand the potential effects of hormonal interventions, consent and protocol education should include parents, the referring MHP(s), and other members of the adolescent's support group. To our knowledge, there are no formally evaluated decision aids available to assist in the discussion and decision regarding the future fertility of adolescents or adults beginning gender-affirming treatment.

Treating early pubertal youth with GnRH analogs will temporarily impair spermatogenesis and oocyte maturation. Given that an increasing number of transgender youth want to preserve fertility potential, delaying or temporarily discontinuing GnRH analogs to promote gamete maturation is an option. This option is often not preferred, because mature sperm production is associated with later stages of puberty and with the significant development of secondary sex characteristics.

For those designated male at birth with GD/gender incongruence and who are in early puberty, sperm production and the development of the reproductive tract are insufficient for the cryopreservation of sperm. However, prolonged pubertal suppression using GnRH analogs is reversible and clinicians should inform these individuals that sperm production can be initiated following prolonged gonadotropin suppression. This can be accomplished by spontaneous gonadotropin recovery after

cessation of GnRH analogs or by gonadotropin treatment and will probably be associated with physical manifestations of testosterone production, as stated above. Note that there are no data in this population concerning the time required for sufficient spermatogenesis to collect enough sperm for later fertility. In males treated for precocious puberty, spermarche was reported 0.7 to 3 years after cessation of GnRH analogs (69). In adult men with gonadotropin deficiency, sperm are noted in seminal fluid by 6 to 12 months of gonadotropin treatment. However, sperm numbers when partners of these patients conceive are far below the "normal range" (70, 71).

In girls, no studies have reported long-term, adverse effects of pubertal suppression on ovarian function after treatment cessation (72, 73). Clinicians should inform adolescents that no data are available regarding either time to spontaneous ovulation after cessation of GnRH analogs or the response to ovulation induction following prolonged gonadotropin suppression.

In males with GD/gender incongruence, when medical treatment is started in a later phase of puberty or in adulthood, spermatogenesis is sufficient for cryopreservation and storage of sperm. *In vitro* spermatogenesis is currently under investigation. Restoration of spermatogenesis after prolonged estrogen treatment has not been studied.

In females with GD/gender incongruence, the effect of prolonged treatment with exogenous testosterone on ovarian function is uncertain. There have been reports of an increased incidence of polycystic ovaries in transgender males, both prior to and as a result of androgen treatment (74–77), although these reports were not confirmed by others (78). Pregnancy has been reported in transgender males who have had prolonged androgen treatment and have discontinued testosterone but have not had genital surgery (79, 80). A reproductive endocrine gynecologist can counsel patients before gender-affirming hormone treatment or surgery regarding potential fertility options (81). Techniques for cryopreservation of oocytes, embryos, and ovarian tissue continue to improve, and oocyte maturation of immature tissue is being studied (82).

2.0 Treatment of Adolescents

During the past decade, clinicians have progressively acknowledged the suffering of young adolescents with GD/gender incongruence. In some forms of GD/gender incongruence, psychological interventions may be useful and sufficient. However, for many adolescents with GD/gender incongruence, the pubertal physical changes are unbearable. As early medical intervention may prevent psychological harm, various clinics have decided to start treating young adolescents with GD/gender incongruence with puberty-suppressing medication (a GnRH analog). As compared with starting gender-affirming treatment long after the first phases of puberty, a benefit of pubertal suppression at early puberty may be a better psychological and physical outcome.

In girls, the first physical sign of puberty is the budding of the breasts followed by an increase in breast and fat tissue. Breast development is also associated with the pubertal growth spurt, and menarche occurs ~2 years later. In boys, the first physical change is testicular growth. A testicular volume ≥4 mL is seen as consistent with the initiation of physical puberty. At the beginning of puberty, estradiol and testosterone levels are still low and are best measured in the early morning with an ultrasensitive assay. From a testicular volume of 10 mL, daytime testosterone levels increase, leading to virilization (83). Note that pubic hair and/or axillary hair/odor may not reflect the onset of gonadarche; instead, it may reflect adrenarche alone.

2.1. We suggest that adolescents who meet diagnostic criteria for GD/gender incongruence, fulfill criteria for treatment (Table 5), and are requesting treatment should initially undergo treatment to suppress pubertal development. (2 ⊕⊕◯◯)

2.2. We suggest that clinicians begin pubertal hormone suppression after girls and boys first exhibit physical changes of puberty (Tanner stages G2/B2). (2 ⊕⊕◯◯)

Evidence

Pubertal suppression can expand the diagnostic phase by a long period, giving the subject more time to explore options and to live in the experienced gender before making a decision to proceed with gender-affirming sex hormone treatments and/or surgery, some of which is irreversible (84, 85). Pubertal suppression is fully reversible, enabling full pubertal development in the natal gender, after cessation of treatment, if appropriate. The experience of full endogenous puberty is an undesirable condition for the GD/gender-incongruent individual and may seriously interfere with healthy psychological functioning and well-being. Treating GD/gender-incongruent adolescents entering puberty with GnRH analogs has been shown to improve psychological functioning in several domains (86).

Another reason to start blocking pubertal hormones early in puberty is that the physical outcome is improved compared with initiating physical transition after puberty has been completed (60, 62). Looking like a man or woman when living as the opposite sex creates difficult

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barriers with enormous life-long disadvantages. We therefore advise starting suppression in early puberty to prevent the irreversible development of undesirable secondary sex characteristics. However, adolescents with GD/gender incongruence should experience the first changes of their endogenous spontaneous puberty, because their emotional reaction to these first physical changes has diagnostic value in establishing the persistence of GD/gender incongruence (85). Thus, Tanner stage 2 is the optimal time to start pubertal suppression. However, pubertal suppression treatment in early puberty will limit the growth of the penis and scrotum, which will have a potential effect on future surgical treatments (87).

Clinicians can also use pubertal suppression in adolescents in later pubertal stages to stop menses in transgender males and prevent facial hair growth in transgender females. However, in contrast to the effects in early pubertal adolescents, physical sex characteristics (such as more advanced breast development in transgender boys and lowering of the voice and outgrowth of the jaw and brow in transgender girls) are not reversible.

Values and preferences

These recommendations place a high value on avoiding an unsatisfactory physical outcome when secondary sex characteristics have become manifest and irreversible, a higher value on psychological well-being, and a lower value on avoiding potential harm from early pubertal suppression.

Remarks

Table 6 lists the Tanner stages of breast and male genital development. Careful documentation of hallmarks of pubertal development will ensure precise timing when initiating pubertal suppression once puberty has started. Clinicians can use pubertal LH and sex steroid levels to confirm that puberty has progressed sufficiently before starting pubertal suppression (88). Reference ranges for sex steroids by Tanner stage may vary depending on the assay used. Ultrasensitive sex steroid and gonadotropin assays will help clinicians document early pubertal changes.

Irreversible and, for GD/gender-incongruent adolescents, undesirable sex characteristics in female puberty are breasts, female body habitus, and, in some cases, relative short stature. In male puberty, they are a prominent Adam's apple; low voice; male bone configuration, such as a large jaw, big feet and hands, and tall stature; and male hair pattern on the face and extremities.

2.3. We recommend that, where indicated, GnRH analogues are used to suppress pubertal hormones. (1 ⊕⊕◯◯)

Evidence

Clinicians can suppress pubertal development and gonadal function most effectively via gonadotropin suppression using GnRH analogs. GnRH analogs are long-acting agonists that suppress gonadotropins by GnRH receptor desensitization after an initial increase of gonadotropins during ~10 days after the first and (to a lesser degree) the second injection (89). Antagonists immediately suppress pituitary gonadotropin secretion (90, 91). Long-acting GnRH analogs are the currently preferred treatment option. Clinicians may consider long-acting GnRH antagonists when evidence on their safety and efficacy in adolescents becomes available.

During GnRH analog treatment, slight development of secondary sex characteristics may regress, and in a later phase of pubertal development, it will stop. In girls, breast tissue will become atrophic, and menses will stop. In boys, virilization will stop, and testicular volume may decrease (92).

An advantage of using GnRH analogs is the reversibility of the intervention. If, after extensive exploration of his/her transition wish, the individual no longer desires transition, they can discontinue pubertal suppression. In subjects with

Table 6. Tanner Stages of Breast Development and Male External Genitalia

The description of Tanner stages for breast development:
1. Prepubertal
2. Breast and papilla elevated as small mound; areolar diameter increased
3. Breast and areola enlarged, no contour separation
4. Areola and papilla form secondary mound
5. Mature; nipple projects, areola part of general breast contour

For penis and testes:
1. Prepubertal, testicular volume <4 mL
2. Slight enlargement of penis; enlarged scrotum, pink, texture altered, testes 4–6 mL
3. Penis longer, testes larger (8–12 mL)
4. Penis and glans larger, including increase in breadth; testes larger (12–15 mL), scrotum dark
5. Penis adult size; testicular volume > 15 ml

Adapted from Lawrence (56).

precocious puberty, spontaneous pubertal development has been shown to resume after patients discontinue taking GnRH analogs (93).

Recommendations 2.1 to 2.3 are supported by a prospective follow-up study from The Netherlands. This report assessed mental health outcomes in 55 transgender adolescents/young adults (22 transgender females and 33 transgender males) at three time points: (1) before the start of GnRH agonist (average age of 14.8 years at start of treatment), (2) at initiation of gender-affirming hormones (average age of 16.7 years at start of treatment), and (3) 1 year after "gender-reassignment surgery" (average age of 20.7 years) (63). Despite a decrease in depression and an improvement in general mental health functioning, GD/gender incongruence persisted through pubertal suppression, as previously reported (86). However, following sex hormone treatment and gender-reassignment surgery, GD/gender incongruence was resolved and psychological functioning steadily improved (63). Furthermore, well-being was similar to or better than that reported by age-matched young adults from the general population, and none of the study participants regretted treatment. This study represents the first long-term follow-up of individuals managed according to currently existing clinical practice guidelines for transgender youth, and it underscores the benefit of the multidisciplinary approach pioneered in The Netherlands; however, further studies are needed.

Side effects

The primary risks of pubertal suppression in GD/gender-incongruent adolescents may include adverse effects on bone mineralization (which can theoretically be reversed with sex hormone treatment), compromised fertility if the person subsequently is treated with sex hormones, and unknown effects on brain development. Few data are available on the effect of GnRH analogs on BMD in adolescents with GD/gender incongruence. Initial data in GD/gender-incongruent subjects demonstrated no change of absolute areal BMD during 2 years of GnRH analog therapy but a decrease in BMD *z* scores (85). A recent study also suggested suboptimal bone mineral accrual during GnRH analog treatment. The study reported a decrease in areal BMD *z* scores and of bone mineral apparent density *z* scores (which takes the size of the bone into account) in 19 transgender males treated with GnRH analogs from a mean age of 15.0 years (standard deviation = 2.0 years) for a median duration of 1.5 years (0.3 to 5.2 years) and in 15 transgender females treated from 14.9 (±1.9) years for 1.3 years (0.5 to 3.8 years), although not all changes were statistically significant (94). There was incomplete catch-up at age 22 years after sex hormone treatment from age 16.6 (±1.4) years for a median duration of 5.8 years (3.0 to 8.0 years) in transgender females and from age 16.4 (±2.3) years for 5.4 years (2.8 to 7.8 years) in transgender males. Little is known about more prolonged use of GnRH analogs. Researchers reported normal BMD *z* scores at age 35 years in one individual who used GnRH analogs from age 13.7 years until age 18.6 years before initiating sex hormone treatment (65).

Additional data are available from individuals with late puberty or GnRH analog treatment of other indications. Some studies reported that men with constitutionally delayed puberty have decreased BMD in adulthood (95). However, other studies reported that these men have normal BMD (96, 97). Treating adults with GnRH analogs results in a decrease of BMD (98). In children with central precocious puberty, treatment with GnRH analogs has been found to result in a decrease of BMD during treatment by some (99) but not others (100). Studies have reported normal BMD after discontinuing therapy (69, 72, 73, 101, 102). In adolescents treated with growth hormone who are small for gestational age and have normal pubertal timing, 2-year GnRH analog treatments did not adversely affect BMD (103). Calcium supplementation may be beneficial in optimizing bone health in GnRH analog–treated individuals (104). There are no studies of vitamin D supplementation in this context, but clinicians should offer supplements to vitamin D–deficient adolescents. Physical activity, especially during growth, is important for bone mass in healthy individuals (103) and is therefore likely to be beneficial for bone health in GnRH analog–treated subjects.

GnRH analogs did not induce a change in body mass index standard deviation score in GD/gender-incongruent adolescents (94) but caused an increase in fat mass and decrease in lean body mass percentage (92). Studies in girls treated for precocious puberty also reported a stable body mass index standard deviation score during treatment (72) and body mass index and body composition comparable to controls after treatment (73).

Arterial hypertension has been reported as an adverse effect in a few girls treated with GnRH analogs for precocious/early puberty (105, 106). Blood pressure monitoring before and during treatment is recommended.

Individuals may also experience hot flashes, fatigue, and mood alterations as a consequence of pubertal suppression. There is no consensus on treatment of these side effects in this context.

It is recommended that any use of pubertal blockers (and subsequent use of sex hormones, as detailed below) include a discussion about implications for fertility (see recommendation 1.3). Transgender adolescents may

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want to preserve fertility, which may be otherwise compromised if puberty is suppressed at an early stage and the individual completes phenotypic transition with the use of sex hormones.

Limited data are available regarding the effects of GnRH analogs on brain development. A single cross-sectional study demonstrated no compromise of executive function (107), but animal data suggest there may be an effect of GnRH analogs on cognitive function (108).

Values and preferences

Our recommendation of GnRH analogs places a higher value on the superior efficacy, safety, and reversibility of the pubertal hormone suppression achieved (as compared with the alternatives) and a relatively lower value on limiting the cost of therapy. Of the available alternatives, depot and oral progestin preparations are effective. Experience with this treatment dates back prior to the emergence of GnRH analogs for treating precocious puberty in papers from the 1960s and early 1970s (109–112). These compounds are usually safe, but some side effects have been reported (113–115). Only two recent studies involved transgender youth (116, 117). One of these studies described the use of oral lynestrenol monotherapy followed by the addition of testosterone treatment in transgender boys who were at Tanner stage B4 or further at the start of treatment (117). They found lynestrenol safe, but gonadotropins were not fully suppressed. The study reported metrorrhagia in approximately half of the individuals, mainly in the first 6 months. Acne, headache, hot flashes, and fatigue were other frequent side effects. Another progestin that has been studied in the United States is medroxyprogesterone. This agent is not as effective as GnRH analogs in lowering endogenous sex hormones either and may be associated with other side effects (116). Progestin preparations may be an acceptable treatment for persons without access to GnRH analogs or with a needle phobia. If GnRH analog treatment is not available (insurance denial, prohibitive cost, or other reasons), postpubertal, transgender female adolescents may be treated with an antiandrogen that directly suppresses androgen synthesis or action (see adult section).

Remarks

Measurements of gonadotropin and sex steroid levels give precise information about gonadal axis suppression, although there is insufficient evidence for any specific short-term monitoring scheme in children treated with GnRH analogs (88). If the gonadal axis is not completely suppressed—as evidenced by (for example) menses, erections, or progressive hair growth—the interval of GnRH analog treatment can be shortened or the dose increased. During treatment, adolescents should be monitored for negative effects of delaying puberty, including a halted growth spurt and impaired bone mineral accretion. Table 7 illustrates a suggested clinical protocol.

Anthropometric measurements and X-rays of the left hand to monitor bone age are informative for evaluating growth. To assess BMD, clinicians can perform dual-energy X-ray absorptiometry scans.

2.4. In adolescents who request sex hormone treatment (given this is a partly irreversible treatment), we recommend initiating treatment using a gradually increasing dose schedule (see Table 8) after a multidisciplinary team of medical and MHPs has confirmed the persistence of GD/gender incongruence and sufficient mental capacity to give informed consent, which most adolescents have by age 16 years (Table 5). (1 |⊕⊕◯◯)

2.5. We recognize that there may be compelling reasons to initiate sex hormone treatment prior to the age of 16 years in some adolescents with GD/gender incongruence, even though there are minimal published studies of gender-affirming hormone treatments administered before age 13.5 to 14 years. As with the care of adolescents ≥16 years of age, we recommend that an expert multidisciplinary team of medical and MHPs manage this treatment. (1 |⊕◯◯◯)

2.6. We suggest monitoring clinical pubertal development every 3 to 6 months and laboratory parameters every 6 to 12 months during sex hormone treatment (Table 9). (2 |⊕⊕◯◯)

Table 7. Baseline and Follow-Up Protocol During Suppression of Puberty

Every 3–6 mo
Anthropometry: height, weight, sitting height, blood pressure, Tanner stages
Every 6–12 mo
Laboratory: LH, FSH, E2/T, 25OH vitamin D
Every 1–2 y
Bone density using DXA
Bone age on X-ray of the left hand (if clinically indicated)

Adapted from Hembree *et al.* (118).

Abbreviations: DXA, dual-energy X-ray absorptiometry; E2, estradiol; FSH, follicle stimulating hormone; LH, luteinizing hormone; T, testosterone;

Table 8. Protocol Induction of Puberty

Induction of female puberty with oral 17β-estradiol, increasing the dose every 6 mo:
- 5 μg/kg/d
- 10 μg/kg/d
- 15 μg/kg/d
- 20 μg/kg/d
- Adult dose = 2–6 mg/d
- *In postpubertal transgender female adolescents, the dose of 17β-estradiol can be increased more rapidly:*
  - 1 mg/d for 6 mo
  - 2 mg/d

Induction of female puberty with transdermal 17β-estradiol, increasing the dose every 6 mo (new patch is placed every 3.5 d):
- 6.25–12.5 μg/24 h (cut 25-μg patch into quarters, then halves)
- 25 μg/24 h
- 37.5 μg/24 h
- Adult dose = 50–200 μg/24 h
- *For alternatives once at adult dose, see Table 11.*
- *Adjust maintenance dose to mimic physiological estradiol levels (see Table 15).*

Induction of male puberty with testosterone esters increasing the dose every 6 mo (IM or SC):
- 25 mg/m^2/2 wk (or alternatively, half this dose weekly, or double the dose every 4 wk)
- 50 mg/m^2/2 wk
- 75 mg/m^2/2 wk
- 100 mg/m^2/2 wk
- Adult dose = 100–200 mg every 2 wk
- *In postpubertal transgender male adolescents the dose of testosterone esters can be increased more rapidly:*
  - 75 mg/2 wk for 6 mo
  - 125 mg/2 wk
- *For alternatives once at adult dose, see Table 11.*
- *Adjust maintenance dose to mimic physiological testosterone levels (see Table 14).*

Adapted from Hembree *et al.* (118).

Abbreviations: IM, intramuscularly; SC, subcutaneously.

Evidence

Adolescents develop competence in decision making at their own pace. Ideally, the supervising medical professionals should individually assess this competence, although no objective tools to make such an assessment are currently available.

Many adolescents have achieved a reasonable level of competence by age 15 to 16 years (119), and in many countries 16-year-olds are legally competent with regard to medical decision making (120). However, others believe that although some capacities are generally achieved before age 16 years, other abilities (such as good risk assessment) do not develop until well after 18 years (121). They suggest that health care procedures should be divided along a matrix of relative risk, so that younger adolescents can be allowed to decide about low-risk procedures, such as most diagnostic tests and common therapies, but not about high-risk procedures, such as most surgical procedures (121).

Currently available data from transgender adolescents support treatment with sex hormones starting at age 16 years (63, 122). However, some patients may incur potential risks by waiting until age 16 years. These include the potential risk to bone health if puberty is suppressed

Table 9. Baseline and Follow-up Protocol During Induction of Puberty

Every 3–6 mo
- •Anthropometry: height, weight, sitting height, blood pressure, Tanner stages

Every 6–12 mo
- •In transgender males: hemoglobin/hematocrit, lipids, testosterone, 25OH vitamin D
- •In transgender females: prolactin, estradiol, 25OH vitamin D

Every 1–2 y
- •BMD using DXA
- •Bone age on X-ray of the left hand (if clinically indicated)

BMD should be monitored into adulthood (until the age of 25–30 y or until peak bone mass has been reached).
For recommendations on monitoring once pubertal induction has been completed, see Tables 14 and 15.

Adapted from Hembree *et al.* (118).

Abbreviation: DXA, dual-energy X-ray absorptiometry.

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for 6 to 7 years before initiating sex hormones (*e.g.*, if someone reached Tanner stage 2 at age 9-10 years old). Additionally, there may be concerns about inappropriate height and potential harm to mental health (emotional and social isolation) if initiation of secondary sex characteristics must wait until the person has reached 16 years of age. However, only minimal data supporting earlier use of gender-affirming hormones in transgender adolescents currently exist (63). Clearly, long-term studies are needed to determine the optimal age of sex hormone treatment in GD/gender-incongruent adolescents.

The MHP who has followed the adolescent during GnRH analog treatment plays an essential role in assessing whether the adolescent is eligible to start sex hormone therapy and capable of consenting to this treatment (Table 5). Support of the family/environment is essential. Prior to the start of sex hormones, clinicians should discuss the implications for fertility (see recommendation 1.5). Throughout pubertal induction, an MHP and a pediatric endocrinologist (or other clinician competent in the evaluation and induction of pubertal development) should monitor the adolescent. In addition to monitoring therapy, it is also important to pay attention to general adolescent health issues, including healthy life style choices, such as not smoking, contraception, and appropriate vaccinations (*e.g.*, human papillomavirus).

For the induction of puberty, clinicians can use a similar dose scheme for hypogonadal adolescents with GD/gender incongruence as they use in other individuals with hypogonadism, carefully monitoring for desired and undesired effects (Table 8). In transgender female adolescents, transdermal 17β-estradiol may be an alternative for oral 17β-estradiol. It is increasingly used for pubertal induction in hypogonadal females. However, the absence of low-dose estrogen patches may be a problem. As a result, individuals may need to cut patches to size themselves to achieve appropriate dosing (123). In transgender male adolescents, clinicians can give testosterone injections intramuscularly or subcutaneously (124, 125).

When puberty is initiated with a gradually increasing schedule of sex steroid doses, the initial levels will not be high enough to suppress endogenous sex steroid secretion. Gonadotropin secretion and endogenous production of testosterone may resume and interfere with the effectiveness of estrogen treatment, in transgender female adolescents (126, 127). Therefore, continuation of GnRH analog treatment is advised until gonadectomy. Given that GD/gender-incongruent adolescents may opt not to have gonadectomy, long-term studies are necessary to examine the potential risks of prolonged GnRH analog treatment. Alternatively, in transgender male adolescents, GnRH analog treatment can be discontinued once an adult dose of testosterone has been reached and the individual is well virilized. If uterine bleeding occurs, a progestin can be added. However, the combined use of a GnRH analog (for ovarian suppression) and testosterone may enable phenotypic transition with a lower dose of testosterone in comparison with testosterone alone. If there is a wish or need to discontinue GnRH analog treatment in transgender female adolescents, they may be treated with an antiandrogen that directly suppresses androgen synthesis or action (see section 3.0 "Hormonal Therapy for Transgender Adults").

Values and preferences

The recommendation to initiate pubertal induction only when the individual has sufficient mental capacity (roughly age 16 years) to give informed consent for this partly irreversible treatment places a higher value on the ability of the adolescent to fully understand and oversee the partially irreversible consequences of sex hormone treatment and to give informed consent. It places a lower value on the possible negative effects of delayed puberty. We may not currently have the means to weigh adequately the potential benefits of waiting until around age 16 years to initiate sex hormones vs the potential risks/harm to BMD and the sense of social isolation from having the timing of puberty be so out of sync with peers (128).

Remarks

Before starting sex hormone treatment, effects on fertility and options for fertility preservation should be discussed. Adult height may be a concern in transgender adolescents. In a transgender female adolescent, clinicians may consider higher doses of estrogen or a more rapid tempo of dose escalation during pubertal induction. There are no established treatments yet to augment adult height in a transgender male adolescent with open epiphyses during pubertal induction. It is not uncommon for transgender adolescents to present for clinical services after having completed or nearly completed puberty. In such cases, induction of puberty with sex hormones can be done more rapidly (see Table 8). Additionally, an adult dose of testosterone in transgender male adolescents may suffice to suppress the gonadal axis without the need to use a separate agent. At the appropriate time, the multidisciplinary team should adequately prepare the adolescent for transition to adult care.

3.0 Hormonal Therapy for Transgender Adults

The two major goals of hormonal therapy are (1) to reduce endogenous sex hormone levels, and thus reduce

the secondary sex characteristics of the individual's designated gender, and (2) to replace endogenous sex hormone levels consistent with the individual's gender identity by using the principles of hormone replacement treatment of hypogonadal patients. The timing of these two goals and the age at which to begin treatment with the sex hormones of the chosen gender is codetermined in collaboration with both the person pursuing transition and the health care providers. The treatment team should include a medical provider knowledgeable in transgender hormone therapy, an MHP knowledgeable in GD/gender incongruence and the mental health concerns of transition, and a primary care provider able to provide care appropriate for transgender individuals. The physical changes induced by this sex hormone transition are usually accompanied by an improvement in mental well-being (129, 130).

3.1. We recommend that clinicians confirm the diagnostic criteria of GD/gender incongruence and the criteria for the endocrine phase of gender transition before beginning treatment. (1 |⊕⊕⊕◯)

3.2. We recommend that clinicians evaluate and address medical conditions that can be exacerbated by hormone depletion and treatment with sex hormones of the affirmed gender before beginning treatment (Table 10). (1 |⊕⊕⊕◯)

3.3. We suggest that clinicians measure hormone levels during treatment to ensure that endogenous sex steroids are suppressed and administered sex steroids are maintained in the normal physiologic range for the affirmed gender. (2 |⊕⊕◯◯)

Evidence

It is the responsibility of the treating clinician to confirm that the person fulfills criteria for treatment. The treating clinician should become familiar with the terms and criteria presented in Tables 1–5 and take a thorough history from the patient in collaboration with the other members of the treatment team. The treating clinician must ensure that the desire for transition is appropriate; the consequences, risks, and benefits of treatment are well understood; and the desire for transition persists. They also need to discuss fertility preservation options (see recommendation 1.3) (67, 68).

Transgender males

Clinical studies have demonstrated the efficacy of several different androgen preparations to induce masculinization in transgender males (Appendix A) (113, 114, 131–134). Regimens to change secondary sex characteristics follow the general principle of hormone replacement treatment of male hypogonadism (135). Clinicians can use either parenteral or transdermal preparations to achieve testosterone values in the normal male range (this is dependent on the specific assay, but is typically 320 to 1000 ng/dL) (Table 11) (136). Sustained supraphysiologic levels of testosterone increase the risk of adverse reactions (see section 4.0 "Adverse Outcome Prevention and Long-Term Care") and should be avoided.

Similar to androgen therapy in hypogonadal men, testosterone treatment in transgender males results in increased muscle mass and decreased fat mass, increased facial hair and acne, male pattern baldness in those genetically predisposed, and increased sexual desire (137).

Table 10. Medical Risks Associated With Sex Hormone Therapy

Transgender female: estrogen
Very high risk of adverse outcomes:
•Thromboembolic disease
Moderate risk of adverse outcomes:
•Macroprolactinoma
•Breast cancer
•Coronary artery disease
•Cerebrovascular disease
•Cholelithiasis
•Hypertriglyceridemia
Transgender male: testosterone
Very high risk of adverse outcomes:
•Erythrocytosis (hematocrit > 50%)
Moderate risk of adverse outcomes:
•Severe liver dysfunction (transaminases > threefold upper limit of normal)
•Coronary artery disease
•Cerebrovascular disease
•Hypertension
•Breast or uterine cancer

Table 11. Hormone Regimens in Transgender Persons

Transgender females[a]	
Estrogen	
Oral	
Estradiol	2.0–6.0 mg/d
Transdermal	
Estradiol transdermal patch (New patch placed every 3–5 d)	0.025–0.2 mg/d
Parenteral	
Estradiol valerate or cypionate	5–30 mg IM every 2 wk 2–10 mg IM every week
Anti-androgens	
Spironolactone	100–300 mg/d
Cyproterone acetate[b]	25–50 mg/d
GnRH agonist	3.75 mg SQ (SC) monthly 11.25 mg SQ (SC) 3-monthly
Transgender males	
Testosterone	
Parenteral testosterone	
Testosterone enanthate or cypionate	100–200 mg SQ (IM) every 2 wk or SQ (SC) 50% per week
Testosterone undecanoate[c]	1000 mg every 12 wk
Transdermal testosterone	
Testosterone gel 1.6%[d]	50–100 mg/d
Testosterone transdermal patch	2.5–7.5 mg/d

Abbreviations: IM, intramuscularly; SQ, sequentially; SC, subcutaneously.

[a]Estrogens used with or without antiandrogens or GnRH agonist.

[b]Not available in the United States.

[c]One thousand milligrams initially followed by an injection at 6 wk then at 12-wk intervals.

[d]Avoid cutaneous transfer to other individuals.

In transgender males, testosterone will result in clitoromegaly, temporary or permanent decreased fertility, deepening of the voice, cessation of menses (usually), and a significant increase in body hair, particularly on the face, chest, and abdomen. Cessation of menses may occur within a few months with testosterone treatment alone, although high doses of testosterone may be required. If uterine bleeding continues, clinicians may consider the addition of a progestational agent or endometrial ablation (138). Clinicians may also administer GnRH analogs or depot medroxyprogesterone to stop menses prior to testosterone treatment.

Transgender females

The hormone regimen for transgender females is more complex than the transgender male regimen (Appendix B). Treatment with physiologic doses of estrogen alone is insufficient to suppress testosterone levels into the normal range for females (139). Most published clinical studies report the need for adjunctive therapy to achieve testosterone levels in the female range (21, 113, 114, 132–134, 139, 140).

Multiple adjunctive medications are available, such as progestins with antiandrogen activity and GnRH agonists (141). Spironolactone works by directly blocking androgens during their interaction with the androgen receptor (114, 133, 142). It may also have estrogenic activity (143). Cyproterone acetate, a progestational compound with antiandrogenic properties (113, 132, 144), is widely used in Europe. 5α-Reductase inhibitors do not reduce testosterone levels and have adverse effects (145).

Dittrich *et al.* (141) reported that monthly doses of the GnRH agonist goserelin acetate in combination with estrogen were effective in reducing testosterone levels with a low incidence of adverse reactions in 60 transgender females. Leuprolide and transdermal estrogen were as effective as cyproterone and transdermal estrogen in a comparative retrospective study (146).

Patients can take estrogen as oral conjugated estrogens, oral 17β-estradiol, or transdermal 17β-estradiol. Among estrogen options, the increased risk of thromboembolic events associated with estrogens in general seems most concerning with ethinyl estradiol specifically (134, 140, 141), which is why we specifically suggest that it not be used in any transgender treatment plan. Data distinguishing among other estrogen options are less well established although there is some thought that oral routes of administration are more thrombogenic due to the "first pass effect" than are transdermal and parenteral routes, and that the risk of thromboembolic events is dose-dependent. Injectable estrogen and sublingual

estrogen may benefit from avoiding the first pass effect, but they can result in more rapid peaks with greater overall periodicity and thus are more difficult to monitor (147, 148). However, there are no data demonstrating that increased periodicity is harmful otherwise.

Clinicians can use serum estradiol levels to monitor oral, transdermal, and intramuscular estradiol. Blood tests cannot monitor conjugated estrogens or synthetic estrogen use. Clinicians should measure serum estradiol and serum testosterone and maintain them at the level for premenopausal females (100 to 200 pg/mL and <50 ng/dL, respectively). The transdermal preparations and injectable estradiol cypionate or valerate preparations may confer an advantage in older transgender females who may be at higher risk for thromboembolic disease (149).

Values

Our recommendation to maintain levels of gender-affirming hormones in the normal adult range places a high value on the avoidance of the long-term complications of pharmacologic doses. Those patients receiving endocrine treatment who have relative contraindications to hormones should have an in-depth discussion with their physician to balance the risks and benefits of therapy.

Remarks

Clinicians should inform all endocrine-treated individuals of all risks and benefits of gender-affirming hormones prior to initiating therapy. Clinicians should strongly encourage tobacco use cessation in transgender females to avoid increased risk of VTE and cardiovascular complications. We strongly discourage the unsupervised use of hormone therapy (150).

Not all individuals with GD/gender incongruence seek treatment as described (*e.g.*, male-to-eunuchs and individuals seeking partial transition). Tailoring current protocols to the individual may be done within the context of accepted safety guidelines using a multidisciplinary approach including mental health. No evidence-based protocols are available for these groups (151). We need prospective studies to better understand treatment options for these persons.

3.4. We suggest that endocrinologists provide education to transgender individuals undergoing treatment about the onset and time course of physical changes induced by sex hormone treatment. (2 |⊕○○○)

Evidence

Transgender males

Physical changes that are expected to occur during the first 1 to 6 months of testosterone therapy include cessation of menses, increased sexual desire, increased facial and body hair, increased oiliness of skin, increased muscle, and redistribution of fat mass. Changes that occur within the first year of testosterone therapy include deepening of the voice (152, 153), clitoromegaly, and male pattern hair loss (in some cases) (114, 144, 154, 155) (Table 12).

Transgender females

Physical changes that may occur in transgender females in the first 3 to 12 months of estrogen and antiandrogen therapy include decreased sexual desire, decreased spontaneous erections, decreased facial and body hair (usually mild), decreased oiliness of skin, increased breast tissue growth, and redistribution of fat mass (114, 139, 149, 154, 155, 161) (Table 13). Breast development is generally maximal at 2 years after initiating hormones (114, 139, 149, 155). Over a long period of time, the prostate gland and testicles will undergo atrophy.

Although the time course of breast development in transgender females has been studied (150), precise information about other changes induced by sex hormones is lacking (141). There is a great deal of variability among individuals, as evidenced during pubertal development. We all know that a major concern for transgender females is breast development. If we work with estrogens, the result will be often not what the transgender female expects.

Alternatively, there are transgender females who report an anecdotal improved breast development, mood, or sexual desire with the use of progestogens. However, there have been no well-designed studies of the role of progestogens in feminizing hormone regimens, so the question is still open.

Our knowledge concerning the natural history and effects of different cross-sex hormone therapies on breast

Table 12. Masculinizing Effects in Transgender Males

Effect	Onset	Maximum
Skin oiliness/acne	1–6 mo	1–2 y
Facial/body hair growth	6–12 mo	4–5 y
Scalp hair loss	6–12 mo	—[a]
Increased muscle mass/strength	6–12 mo	2–5 y
Fat redistribution	1–6 mo	2–5 y
Cessation of menses	1–6 mo	—[b]
Clitoral enlargement	1–6 mo	1–2 y
Vaginal atrophy	1–6 mo	1–2 y
Deepening of voice	6–12 mo	1–2 y

Estimates represent clinical observations: Toorians *et al.* (149), Asscheman *et al.* (156), Gooren *et al.* (157), Wierckx *et al.* (158).

[a] Prevention and treatment as recommended for biological men.

[b] Menorrhagia requires diagnosis and treatment by a gynecologist.

Table 13. Feminizing Effects in Transgender Females

Effect	Onset	Maximum
Redistribution of body fat	3–6 mo	2–3 y
Decrease in muscle mass and strength	3–6 mo	1–2 y
Softening of skin/decreased oiliness	3–6 mo	Unknown
Decreased sexual desire	1–3 mo	3–6 mo
Decreased spontaneous erections	1–3 mo	3–6 mo
Male sexual dysfunction	Variable	Variable
Breast growth	3–6 mo	2–3 y
Decreased testicular volume	3–6 mo	2–3 y
Decreased sperm production	Unknown	>3 y
Decreased terminal hair growth	6–12 mo	>3 y[a]
Scalp hair	Variable	—[b]
Voice changes	None	—[c]

Estimates represent clinical observations: Toorians *et al.* (149), Asscheman *et al.* (156), Gooren *et al.* (157).

[a]Complete removal of male sexual hair requires electrolysis or laser treatment or both.

[b]Familial scalp hair loss may occur if estrogens are stopped.

[c]Treatment by speech pathologists for voice training is most effective.

development in transgender females is extremely sparse and based on the low quality of evidence. Current evidence does not indicate that progestogens enhance breast development in transgender females, nor does evidence prove the absence of such an effect. This prevents us from drawing any firm conclusion at this moment and demonstrates the need for further research to clarify these important clinical questions (162).

Values and preferences

Transgender persons have very high expectations regarding the physical changes of hormone treatment and are aware that body changes can be enhanced by surgical procedures (*e.g.*, breast, face, and body habitus). Clear expectations for the extent and timing of sex hormone–induced changes may prevent the potential harm and expense of unnecessary procedures.

4.0 Adverse Outcome Prevention and Long-Term Care

Hormone therapy for transgender males and females confers many of the same risks associated with sex hormone replacement therapy in nontransgender persons. The risks arise from and are worsened by inadvertent or intentional use of supraphysiologic doses of sex hormones, as well as use of inadequate doses of sex hormones to maintain normal physiology (131, 139).

4.1. We suggest regular clinical evaluation for physical changes and potential adverse changes in response to sex steroid hormones and laboratory monitoring of sex steroid hormone levels every 3 months during the first year of hormone therapy for transgender males and females and then once or twice yearly. (2 |⊕⊕○○)

Evidence

Pretreatment screening and appropriate regular medical monitoring are recommended for both transgender males and females during the endocrine transition and periodically thereafter (26, 155). Clinicians should monitor weight and blood pressure, conduct physical exams, and assess routine health questions, such as tobacco use, symptoms of depression, and risk of adverse events such as deep vein thrombosis/pulmonary embolism and other adverse effects of sex steroids.

Transgender males

Table 14 contains a standard monitoring plan for transgender males on testosterone therapy (154, 159). Key issues include maintaining testosterone levels in the physiologic normal male range and avoiding adverse events resulting from excess testosterone therapy, particularly erythrocytosis, sleep apnea, hypertension, excessive weight gain, salt retention, lipid changes, and excessive or cystic acne (135).

Because oral 17-alkylated testosterone is not recommended, serious hepatic toxicity is not anticipated with parenteral or transdermal testosterone use (163, 164). Past concerns regarding liver toxicity with testosterone have been alleviated with subsequent reports that indicate the risk of serious liver disease is minimal (144, 165, 166).

Transgender females

Table 15 contains a standard monitoring plan for transgender females on estrogens, gonadotropin suppression, or antiandrogens (160). Key issues include avoiding supraphysiologic doses or blood levels of estrogen that may lead to increased risk for thromboembolic disease, liver dysfunction, and hypertension. Clinicians should monitor serum estradiol levels using laboratories participating in external quality control, as measurements of estradiol in blood can be very challenging (167).

VTE may be a serious complication. A study reported a 20-fold increase in venous thromboembolic disease in a large cohort of Dutch transgender subjects (161). This increase may have been associated with the use of the synthetic estrogen, ethinyl estradiol (149). The incidence decreased when clinicians stopped administering ethinyl estradiol (161). Thus, the use of synthetic estrogens and conjugated estrogens is undesirable because of the inability to regulate doses by measuring serum levels and the risk of thromboembolic disease. In a German gender clinic, deep vein thrombosis occurred in 1 of 60 of transgender females treated with a GnRH analog and oral

Table 14. Monitoring of Transgender Persons on Gender-Affirming Hormone Therapy: Transgender Male

1. Evaluate patient every 3 mo in the first year and then one to two times per year to monitor for appropriate signs of virilization and for development of adverse reactions.
2. Measure serum testosterone every 3 mo until levels are in the normal physiologic male range:[a]
   a. For testosterone enanthate/cypionate injections, the testosterone level should be measured midway between injections. The target level is 400–700 ng/dL to 400 ng/dL. Alternatively, measure peak and trough levels to ensure levels remain in the normal male range.
   b. For parenteral testosterone undecanoate, testosterone should be measured just before the following injection. If the level is <400 ng/dL, adjust dosing interval.
   c. For transdermal testosterone, the testosterone level can be measured no sooner than after 1 wk of daily application (at least 2 h after application).
3. Measure hematocrit or hemoglobin at baseline and every 3 mo for the first year and then one to two times a year. Monitor weight, blood pressure, and lipids at regular intervals.
4. Screening for osteoporosis should be conducted in those who stop testosterone treatment, are not compliant with hormone therapy, or who develop risks for bone loss.
5. If cervical tissue is present, monitoring as recommended by the American College of Obstetricians and Gynecologists.
6. Ovariectomy can be considered after completion of hormone transition.
7. Conduct sub- and periareolar annual breast examinations if mastectomy performed. If mastectomy is not performed, then consider mammograms as recommended by the American Cancer Society.

[a] Adapted from Lapauw *et al.* (154) and Ott *et al.* (159).

estradiol (141). The patient who developed a deep vein thrombosis was found to have a homozygous C677 T mutation in the methylenetetrahydrofolate reductase gene. In an Austrian gender clinic, administering gender-affirming hormones to 162 transgender females and 89 transgender males was not associated with VTE, despite an 8.0% and 5.6% incidence of thrombophilia (159). A more recent multinational study reported only 10 cases of VTE from a cohort of 1073 subjects (168). Thrombophilia screening of transgender persons initiating hormone treatment should be restricted to those with a personal or family history of VTE (159). Monitoring D-dimer levels during treatment is not recommended (169).

4.2. We suggest periodically monitoring prolactin levels in transgender females treated with estrogens. (2 l⊕⊕◯◯)

Evidence

Estrogen therapy can increase the growth of pituitary lactrotroph cells. There have been several reports of prolactinomas occurring after long-term, high-dose estrogen therapy (170–173). Up to 20% of transgender females treated with estrogens may have elevations in prolactin levels associated with enlargement of the pituitary gland (156). In most cases, the serum prolactin levels will return to the normal range with a reduction or discontinuation of the estrogen therapy or discontinuation of cyproterone acetate (157, 174, 175).

The onset and time course of hyperprolactinemia during estrogen treatment are not known. Clinicians should measure prolactin levels at baseline and then at least annually during the transition period and every 2 years thereafter. Given that only a few case studies reported prolactinomas, and prolactinomas were not reported in large cohorts of estrogen-treated persons, the risk is likely to be very low. Because the major presenting findings of microprolactinomas (hypogonadism and sometimes gynecomastia) are not apparent in transgender females, clinicians may perform radiologic examinations of the pituitary in those patients whose prolactin levels persistently increase despite stable or reduced estrogen levels. Some transgender individuals receive psychotropic medications that can increase prolactin levels (174).

Table 15. Monitoring of Transgender Persons on Gender-Affirming Hormone Therapy: Transgender Female

1. Evaluate patient every 3 mo in the first year and then one to two times per year to monitor for appropriate signs of feminization and for development of adverse reactions.
2. Measure serum testosterone and estradiol every 3 mo.
   a. Serum testosterone levels should be <50 ng/dL.
   b. Serum estradiol should not exceed the peak physiologic range: 100–200 pg/mL.
3. For individuals on spironolactone, serum electrolytes, particularly potassium, should be monitored every 3 mo in the first year and annually thereafter.
4. Routine cancer screening is recommended, as in nontransgender individuals (all tissues present).
5. Consider BMD testing at baseline (160). In individuals at low risk, screening for osteoporosis should be conducted at age 60 years or in those who are not compliant with hormone therapy.

This table presents strong recommendations and does not include lower level recommendations.

4.3. We suggest that clinicians evaluate transgender persons treated with hormones for cardiovascular risk factors using fasting lipid profiles, diabetes screening, and/or other diagnostic tools. (2 |⊕⊕◯◯)

Evidence

Transgender males

Administering testosterone to transgender males results in a more atherogenic lipid profile with lowered high-density lipoprotein cholesterol and higher triglyceride and low-density lipoprotein cholesterol values (176–179). Studies of the effect of testosterone on insulin sensitivity have mixed results (178, 180). A randomized, open-label uncontrolled safety study of transgender males treated with testosterone undecanoate demonstrated no insulin resistance after 1 year (181, 182). Numerous studies have demonstrated the effects of sex hormone treatment on the cardiovascular system (160, 179, 183, 184). Long-term studies from The Netherlands found no increased risk for cardiovascular mortality (161). Likewise, a meta-analysis of 19 randomized trials in nontransgender males on testosterone replacement showed no increased incidence of cardiovascular events (185). A systematic review of the literature found that data were insufficient (due to very low–quality evidence) to allow a meaningful assessment of patient-important outcomes, such as death, stroke, myocardial infarction, or VTE in transgender males (176). Future research is needed to ascertain the potential harm of hormonal therapies (176). Clinicians should manage cardiovascular risk factors as they emerge according to established guidelines (186).

Transgender females

A prospective study of transgender females found favorable changes in lipid parameters with increased high-density lipoprotein and decreased low-density lipoprotein concentrations (178). However, increased weight, blood pressure, and markers of insulin resistance attenuated these favorable lipid changes. In a meta-analysis, only serum triglycerides were higher at ≥24 months without changes in other parameters (187). The largest cohort of transgender females (mean age 41 years, followed for a mean of 10 years) showed no increase in cardiovascular mortality despite a 32% rate of tobacco use (161).

Thus, there is limited evidence to determine whether estrogen is protective or detrimental on lipid and glucose metabolism in transgender females (176). With aging, there is usually an increase of body weight. Therefore, as with nontransgender individuals, clinicians should monitor and manage glucose and lipid metabolism and blood pressure regularly according to established guidelines (186).

4.4. We recommend that clinicians obtain BMD measurements when risk factors for osteoporosis exist, specifically in those who stop sex hormone therapy after gonadectomy. (1 |⊕⊕◯◯)

Evidence

Transgender males

Baseline bone mineral measurements in transgender males are generally in the expected range for their pretreatment gender (188). However, adequate dosing of testosterone is important to maintain bone mass in transgender males (189, 190). In one study (190), serum LH levels were inversely related to BMD, suggesting that low levels of sex hormones were associated with bone loss. Thus, LH levels in the normal range may serve as an indicator of the adequacy of sex steroid administration to preserve bone mass. The protective effect of testosterone may be mediated by peripheral conversion to estradiol, both systemically and locally in the bone.

Transgender females

A baseline study of BMD reported T scores less than −2.5 in 16% of transgender females (191). In aging males, studies suggest that serum estradiol more positively correlates with BMD than does testosterone (192, 193) and is more important for peak bone mass (194). Estrogen preserves BMD in transgender females who continue on estrogen and antiandrogen therapies (188, 190, 191, 195, 196).

Fracture data in transgender males and females are not available. Transgender persons who have undergone gonadectomy may choose not to continue consistent sex steroid treatment after hormonal and surgical sex reassignment, thereby becoming at risk for bone loss. There have been no studies to determine whether clinicians should use the sex assigned at birth or affirmed gender for assessing osteoporosis (*e.g.*, when using the FRAX tool). Although some researchers use the sex assigned at birth (with the assumption that bone mass has usually peaked for transgender people who initiate hormones in early adulthood), this should be assessed on a case-by-case basis until there are more data available. This assumption will be further complicated by the increasing prevalence of transgender people who undergo hormonal transition at a pubertal age or soon after puberty. Sex for comparison within risk assessment tools may be based on the age at which hormones were initiated and the length of exposure to hormones. In some cases, it may be

reasonable to assess risk using both the male and female calculators and using an intermediate value. Because all subjects underwent normal pubertal development, with known effects on bone size, reference values for birth sex were used for all participants (154).

4.5. We suggest that transgender females with no known increased risk of breast cancer follow breast-screening guidelines recommended for those designated female at birth. (2 |⊕⊕◯◯)

4.6. We suggest that transgender females treated with estrogens follow individualized screening according to personal risk for prostatic disease and prostate cancer. (2 |⊕◯◯◯)

Evidence

Studies have reported a few cases of breast cancer in transgender females (197–200). A Dutch study of 1800 transgender females followed for a mean of 15 years (range of 1 30 years) found one case of breast cancer. The Women's Health Initiative study reported that females taking conjugated equine estrogen without progesterone for 7 years did not have an increased risk of breast cancer as compared with females taking placebo (137).

In transgender males, a large retrospective study conducted at the U.S. Veterans Affairs medical health system identified seven breast cancers (194). The authors reported that this was not above the expected rate of breast cancers in cisgender females in this cohort. Furthermore, they did report one breast cancer that developed in a transgender male patient after mastectomy, supporting the fact that breast cancer can occur even after mastectomy. Indeed, there have been case reports of breast cancer developing in subareolar tissue in transgender males, which occurred after mastectomy (201, 202).

Women with primary hypogonadism (Turner syndrome) treated with estrogen replacement exhibited a significantly decreased incidence of breast cancer as compared with national standardized incidence ratios (203, 204). These studies suggest that estrogen therapy does not increase the risk of breast cancer in the short term (<20 to 30 years). We need long-term studies to determine the actual risk, as well as the role of screening mammograms. Regular examinations and gynecologic advice should determine monitoring for breast cancer.

Prostate cancer is very rare before the age of 40, especially with androgen deprivation therapy (205). Childhood or pubertal castration results in regression of the prostate and adult castration reverses benign prostate hypertrophy (206). Although van Kesteren *et al.* (207) reported that estrogen therapy does not induce hypertrophy or premalignant changes in the prostates of transgender females, studies have reported cases of benign prostatic hyperplasia in transgender females treated with estrogens for 20 to 25 years (208, 209). Studies have also reported a few cases of prostate carcinoma in transgender females (210–214).

Transgender females may feel uncomfortable scheduling regular prostate examinations. Gynecologists are not trained to screen for prostate cancer or to monitor prostate growth. Thus, it may be reasonable for transgender females who transitioned after age 20 years to have annual screening digital rectal examinations after age 50 years and prostate-specific antigen tests consistent with U.S. Preventive Services Task Force Guidelines (215).

4.7. We advise that clinicians determine the medical necessity of including a total hysterectomy and oophorectomy as part of gender-affirming surgery. (Ungraded Good Practice Statement)

Evidence

Although aromatization of testosterone to estradiol in transgender males has been suggested as a risk factor for endometrial cancer (216), no cases have been reported. When transgender males undergo hysterectomy, the uterus is small and there is endometrial atrophy (217, 218). Studies have reported cases of ovarian cancer (219, 220). Although there is limited evidence for increased risk of reproductive tract cancers in transgender males, health care providers should determine the medical necessity of a laparoscopic total hysterectomy as part of a gender-affirming surgery to prevent reproductive tract cancer (221).

Values

Given the discomfort that transgender males experience accessing gynecologic care, our recommendation for the medical necessity of total hysterectomy and oophorectomy places a high value on eliminating the risks of female reproductive tract disease and cancer and a lower value on avoiding the risks of these surgical procedures (related to the surgery and to the potential undesirable health consequences of oophorectomy) and their associated costs.

Remarks

The sexual orientation and type of sexual practices will determine the need and types of gynecologic care required following transition. Additionally, in certain countries, the approval required to change the sex in a birth certificate for transgender males may be dependent on having a complete hysterectomy. Clinicians should help patients research nonmedical administrative criteria and

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provide counseling. If individuals decide not to undergo hysterectomy, screening for cervical cancer is the same as all other females.

5.0 Surgery for Sex Reassignment and Gender Confirmation

For many transgender adults, genital gender-affirming surgery may be the necessary step toward achieving their ultimate goal of living successfully in their desired gender role. The type of surgery falls into two main categories: (1) those that directly affect fertility and (2) those that do not. Those that change fertility (previously called sex reassignment surgery) include genital surgery to remove the penis and gonads in the male and removal of the uterus and gonads in the female. The surgeries that effect fertility are often governed by the legal system of the state or country in which they are performed. Other gender-conforming surgeries that do not directly affect fertility are not so tightly governed.

Gender-affirming surgical techniques have improved markedly during the past 10 years. Reconstructive genital surgery that preserves neurologic sensation is now the standard. The satisfaction rate with surgical reassignment of sex is now very high (187). Additionally, the mental health of the individual seems to be improved by participating in a treatment program that defines a pathway of gender-affirming treatment that includes hormones and surgery (130, 144) (Table 16).

Surgery that affects fertility is irreversible. The World Professional Association for Transgender Health Standards of Care (222) emphasizes that the "threshold of 18 should not be seen as an indication in itself for active intervention." If the social transition has not been satisfactory, if the person is not satisfied with or is ambivalent about the effects of sex hormone treatment, or if the person is ambivalent about surgery then the individual should not be referred for surgery (223, 224).

Gender-affirming genital surgeries for transgender females that affect fertility include gonadectomy, penectomy, and creation of a neovagina (225, 226). Surgeons often invert the skin of the penis to form the wall of the vagina, and several literatures reviews have reported on outcomes (227). Sometimes there is inadequate tissue to form a full neovagina, so clinicians have revisited using intestine and found it to be successful (87, 228, 229). Some newer vaginoplasty techniques may involve autologuous oral epithelial cells (230, 231).

The scrotum becomes the labia majora. Surgeons use reconstructive surgery to fashion the clitoris and its hood, preserving the neurovascular bundle at the tip of the penis as the neurosensory supply to the clitoris. Some surgeons are also creating a sensate pedicled-spot adding a G spot to the neovagina to increase sensation (232). Most recently, plastic surgeons have developed techniques to fashion labia minora. To further complete the feminization, uterine transplants have been proposed and even attempted (233).

Neovaginal prolapse, rectovaginal fistula, delayed healing, vaginal stenosis, and other complications do sometimes occur (234, 235). Clinicians should strongly remind the transgender person to use their dilators to maintain the depth and width of the vagina throughout the postoperative period. Genital sexual responsivity and other aspects of sexual function are usually preserved following genital gender-affirming surgery (236, 237).

Ancillary surgeries for more feminine or masculine appearance are not within the scope of this guideline. Voice therapy by a speech language pathologist is available to transform speech patterns to the affirmed gender (148). Spontaneous voice deepening occurs during testosterone treatment of transgender males (152, 238). No studies have compared the effectiveness of speech therapy, laryngeal surgery, or combined treatment.

Breast surgery is a good example of gender-confirming surgery that does not affect fertility. In all females, breast size exhibits a very broad spectrum. For transgender females to make the best informed decision, clinicians should delay breast augmentation surgery until the patient has completed at least 2 years of estrogen therapy, because the breasts continue to grow during that time (141, 155).

Another major procedure is the removal of facial and masculine-appearing body hair using either electrolysis or

Table 16. Criteria for Gender-Affirming Surgery, Which Affects Fertility

1. Persistent, well-documented gender dysphoria
2. Legal age of majority in the given country
3. Having continuously and responsibly used gender-affirming hormones for 12 mo (if there is no medical contraindication to receiving such therapy)
4. Successful continuous full-time living in the new gender role for 12 mo
5. If significant medical or mental health concerns are present, they must be well controlled
6. Demonstrable knowledge of all practical aspects of surgery (*e.g.*, cost, required lengths of hospitalizations, likely complications, postsurgical rehabilitation)

laser treatments. Other feminizing surgeries, such as that to feminize the face, are now becoming more popular (239–241).

In transgender males, clinicians usually delay gender-affirming genital surgeries until after a few years of androgen therapy. Those surgeries that affect fertility in this group include oophorectomy, vaginectomy, and complete hysterectomy. Surgeons can safely perform them vaginally with laparoscopy. These are sometimes done in conjunction with the creation of a neopenis. The cosmetic appearance of a neopenis is now very good, but the surgery is multistage and very expensive (242, 243). Radial forearm flap seems to be the most satisfactory procedure (228, 244). Other flaps also exist (245). Surgeons can make neopenile erections possible by reinervation of the flap and subsequent contraction of the muscle, leading to stiffening of the neopenis (246, 247), but results are inconsistent (248). Surgeons can also stiffen the penis by imbedding some mechanical device (*e.g.*, a rod or some inflatable apparatus) (249, 250). Because of these limitations, the creation of a neopenis has often been less than satisfactory. Recently, penis transplants are being proposed (233).

In fact, most transgender males do not have any external genital surgery because of the lack of access, high cost, and significant potential complications. Some choose a metaoidioplasty that brings forward the clitoris, thereby allowing them to void in a standing position without wetting themselves (251, 252). Surgeons can create the scrotum from the labia majora with good cosmetic effect and can implant testicular prostheses (253).

The most important masculinizing surgery for the transgender male is mastectomy, and it does not affect fertility. Breast size only partially regresses with androgen therapy (155). In adults, discussions about mastectomy usually take place after androgen therapy has started. Because some transgender male adolescents present after significant breast development has occurred, they may also consider mastectomy 2 years after they begin androgen therapy and before age 18 years. Clinicians should individualize treatment based on the physical and mental health status of the individual. There are now newer approaches to mastectomy with better outcomes (254, 255). These often involve chest contouring (256). Mastectomy is often necessary for living comfortably in the new gender (256).

5.1. We recommend that a patient pursue genital gender-affirming surgery only after the MHP and the clinician responsible for endocrine transition therapy both agree that surgery is medically necessary and would benefit the patient's overall health and/or well-being. (1 ⊕⊕◯◯)

5.2. We advise that clinicians approve genital gender-affirming surgery only after completion of at least 1 year of consistent and compliant hormone treatment, unless hormone therapy is not desired or medically contraindicated. (Ungraded Good Practice Statement)

5.3. We advise that the clinician responsible for endocrine treatment and the primary care provider ensure appropriate medical clearance of transgender individuals for genital gender-affirming surgery and collaborate with the surgeon regarding hormone use during and after surgery. (Ungraded Good Practice Statement)

5.4. We recommend that clinicians refer hormone-treated transgender individuals for genital surgery when: (1) the individual has had a satisfactory social role change, (2) the individual is satisfied about the hormonal effects, and (3) the individual desires definitive surgical changes. (1 ⊕◯◯◯)

5.5. We suggest that clinicians delay gender-affirming genital surgery involving gonadectomy and/or hysterectomy until the patient is at least 18 years old or legal age of majority in his or her country. (2 ⊕⊕◯◯).

5.6. We suggest that clinicians determine the timing of breast surgery for transgender males based upon the physical and mental health status of the individual. There is insufficient evidence to recommend a specific age requirement. (2 ⊕◯◯◯)

Evidence

Owing to the lack of controlled studies, incomplete follow-up, and lack of valid assessment measures, evaluating various surgical approaches and techniques is difficult. However, one systematic review including a large numbers of studies reported satisfactory cosmetic and functional results for vaginoplasty/neovagina construction (257). For transgender males, the outcomes are less certain. However, the problems are now better understood (258). Several postoperative studies report significant long-term psychological and psychiatric pathology (259–261). One study showed satisfaction with breasts, genitals, and femininity increased significantly and showed the importance of surgical treatment as a key therapeutic option for transgender females (262). Another analysis demonstrated that, despite the young average age at death following surgery and the relatively larger number of individuals with somatic morbidity, the study does not allow for determination of

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causal relationships between, for example, specific types of hormonal or surgical treatment received and somatic morbidity and mortality (263). Reversal surgery in regretful male-to-female transsexuals after sexual reassignment surgery represents a complex, multistage procedure with satisfactory outcomes. Further insight into the characteristics of persons who regret their decision postoperatively would facilitate better future selection of applicants eligible for sexual reassignment surgery. We need more studies with appropriate controls that examine long-term quality of life, psychosocial outcomes, and psychiatric outcomes to determine the long-term benefits of surgical treatment.

When a transgender individual decides to have gender-affirming surgery, both the hormone prescribing clinician and the MHP must certify that the patient satisfies criteria for gender-affirming surgery (Table 16).

There is some concern that estrogen therapy may cause an increased risk for venous thrombosis during or following surgery (176). For this reason, the surgeon and the hormone-prescribing clinician should collaborate in making a decision about the use of hormones before and following surgery. One study suggests that preoperative factors (such as compliance) are less important for patient satisfaction than are the physical postoperative results (56). However, other studies and clinical experience dictate that individuals who do not follow medical instructions and do not work with their physicians toward a common goal do not achieve treatment goals (264) and experience higher rates of postoperative infections and other complications (265, 266). It is also important that the person requesting surgery feels comfortable with the anatomical changes that have occurred during hormone therapy. Dissatisfaction with social and physical outcomes during the hormone transition may be a contraindication to surgery (223).

An endocrinologist or experienced medical provider should monitor transgender individuals after surgery. Those who undergo gonadectomy will require hormone replacement therapy, surveillance, or both to prevent adverse effects of chronic hormone deficiency.

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Correspondence and Reprint Requests: The Endocrine Society, 2055 L Street NW, Suite 600, Washington, DC 20036. E-mail: publications@endocrine.org; Phone: 202971-3636.

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RESEARCH ARTICLE

Parent reports of adolescents and young adults perceived to show signs of a rapid onset of gender dysphoria

Lisa Littman *

Department of Behavioral and Social Sciences, Brown University School of Public Health, Providence, Rhode Island, United States of America

* Lisa_Littman@brown.edu

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Abstract

Purpose

In on-line forums, parents have reported that their children seemed to experience a sudden or rapid onset of gender dysphoria, appearing for the first time during puberty or even after its completion. Parents describe that the onset of gender dysphoria seemed to occur in the context of belonging to a peer group where one, multiple, or even all of the friends have become gender dysphoric and transgender-identified during the same timeframe. Parents also report that their children exhibited an increase in social media/internet use prior to disclosure of a transgender identity. Recently, clinicians have reported that post-puberty presentations of gender dysphoria in natal females that appear to be rapid in onset is a phenomenon that they are seeing more and more in their clinic. Academics have raised questions about the role of social media in the development of gender dysphoria. The purpose of this study was to collect data about parents' observations, experiences, and perspectives about their adolescent and young adult (AYA) children showing signs of an apparent sudden or rapid onset of gender dysphoria that began during or after puberty, and develop hypotheses about factors that may contribute to the onset and/or expression of gender dysphoria among this demographic group.

Methods

For this descriptive, exploratory study, recruitment information with a link to a 90-question survey, consisting of multiple-choice, Likert-type and open-ended questions was placed on three websites where parents had reported sudden or rapid onsets of gender dysphoria occurring in their teen or young adult children. The study's eligibility criteria included parental response that their child had a sudden or rapid onset of gender dysphoria and parental indication that their child's gender dysphoria began during or after puberty. To maximize the chances of finding cases meeting eligibility criteria, the three websites (4thwavenow, transgender trend, and youthtranscriticalprofessionals) were selected for targeted recruitment. Website moderators and potential participants were encouraged to share the recruitment information and link to the survey with any individuals or communities that they thought

risk of participant recognition through linkage of details. As participants' identifiers were not collected it is not possible to contact participants and ask for their consent to disclose at this time. For any questions about restriction on data sharing, please contact PPHS at the Icahn School of Medicine at Mount Sinai (IRB@mssm.edu).

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Competing interests: Lisa Littman, MD, MPH, provides public health consulting on topics unrelated to this research. She is a member of several professional organizations including the American College of Preventive Medicine (ACPM), the American Public Health Association (APHA), the Society for Adolescent Health and Medicine (SAHM), the Society of Family Planning (SFP), the International Academy of Sex Research (IASR), and the World Professional Association for Transgender Health (WPATH).

might include eligible participants to expand the reach of the project through snowball sampling techniques. Data were collected anonymously via SurveyMonkey. Quantitative findings are presented as frequencies, percentages, ranges, means and/or medians. Open-ended responses from two questions were targeted for qualitative analysis of themes.

Results

There were 256 parent-completed surveys that met study criteria. The AYA children described were predominantly natal female (82.8%) with a mean age of 16.4 years at the time of survey completion and a mean age of 15.2 when they announced a transgender-identification. Per parent report, 41% of the AYAs had expressed a non-heterosexual sexual orientation before identifying as transgender. Many (62.5%) of the AYAs had reportedly been diagnosed with at least one mental health disorder or neurodevelopmental disability prior to the onset of their gender dysphoria (range of the number of pre-existing diagnoses 0–7). In 36.8% of the friendship groups described, parent participants indicated that the majority of the members became transgender-identified. Parents reported subjective declines in their AYAs' mental health (47.2%) and in parent-child relationships (57.3%) since the AYA "came out" and that AYAs expressed a range of behaviors that included: expressing distrust of non-transgender people (22.7%); stopping spending time with non-transgender friends (25.0%); trying to isolate themselves from their families (49.4%), and only trusting information about gender dysphoria from transgender sources (46.6%). Most (86.7%) of the parents reported that, along with the sudden or rapid onset of gender dysphoria, their child either had an increase in their social media/internet use, belonged to a friend group in which one or multiple friends became transgender-identified during a similar time-frame, or both

Conclusion

This descriptive, exploratory study of parent reports provides valuable detailed information that allows for the generation of hypotheses about factors that may contribute to the onset and/or expression of gender dysphoria among AYAs. Emerging hypotheses include the possibility of a potential new subcategory of gender dysphoria (referred to as rapid-onset gender dysphoria) that has not yet been clinically validated and the possibility of social influences and maladaptive coping mechanisms. Parent-child conflict may also explain some of the findings. More research that includes data collection from AYAs, parents, clinicians and third party informants is needed to further explore the roles of social influence, maladaptive coping mechanisms, parental approaches, and family dynamics in the development and duration of gender dysphoria in adolescents and young adults.

Introduction

In recent years, a number of parents have begun reporting in online discussion groups such as 4thwavenow in the US (https://4thwavenow.com) and Transgender Trend in the UK (https://www.transgendertrend.com) that their adolescent and young adult (AYA) children, who have had no histories of childhood gender identity issues, experienced a perceived sudden or rapid

onset of gender dysphoria. Parents have described clusters of gender dysphoria in pre-existing friend groups with multiple or even all members of a friend group becoming gender dysphoric and transgender-identified in a pattern that seems statistically unlikely based on previous research [1–8]. Parents describe a process of immersion in social media, such as "binge-watching" YouTube transition videos and excessive use of Tumblr, immediately preceding their child becoming gender dysphoric [1–2, 9]. These types of presentations have not been described in the research literature for gender dysphoria [1–10] and raise the question of whether social influences may be contributing to or even driving these occurrences of gender dysphoria in some populations of adolescents and young adults. (Note: The terminology of "natal sex", including the terms "natal female" and "natal male", will be used throughout this article. Natal sex refers to an individual's sex as it was observed and documented at the time of birth. Some researchers also use the terminology "assigned at birth".)

Background

Gender dysphoria in adolescents

Gender dysphoria (GD) is defined as an individual's persistent discomfort with their biological sex or assigned gender [11]. Two types of gender dysphoria studied include early-onset gender dysphoria, where the symptoms of gender dysphoria begin in early childhood, and late-onset gender dysphoria, where the symptoms begin after puberty [11]. Late-onset gender dysphoria that occurs during adolescence is now called adolescent-onset gender dysphoria. The majority of adolescents who present for care for gender dysphoria are individuals who experienced early-onset gender dysphoria that persisted or worsened with puberty although an atypical presentation has been described where adolescents who did not experience childhood symptoms present with new symptoms in adolescence [7, 12]. Adolescent-onset of gender dysphoria has only recently been reported in the literature for natal females [5,10, 13–14]. In fact, prior to 2012, there were little to no research studies about adolescent females with gender dysphoria first beginning in adolescence [10]. Thus, far more is known about adolescents with early-onset gender dysphoria than adolescents with adolescent-onset gender dysphoria [6, 15]. Although not all research studies on gender dysphoric adolescents exclude those with adolescent-onset gender dysphoria [10], it is important to note that most of the studies on adolescents, particularly those about gender dysphoria persistence and desistance rates and outcomes for the use of puberty suppression, cross-sex hormones, and surgery only included subjects whose gender dysphoria began in childhood and subjects with adolescent-onset gender dysphoria would not have met inclusion criteria for these studies [16–24]. Therefore, most of the research on adolescents with gender dysphoria to date is not generalizable to adolescents experiencing adolescent-onset gender dysphoria [16–24] and the outcomes for individuals with adolescent-onset gender dysphoria, including persistence and desistence rates and outcomes for treatments, are currently unknown.

As recently as 2012, there were only two clinics (one in Canada and one in the Netherlands) that had gathered enough data to provide empirical information about the main issues for gender dysphoric adolescents [25]. Both institutions concluded that the management of adolescent-onset gender dysphoria is more complicated than the management of early-onset gender dysphoria and that individuals with adolescent-onset are more likely to have significant psychopathology [25]. The presentation of gender dysphoria can occur in the context of severe psychiatric disorders, developmental difficulties, or as part of large-scale identity issues and, for these patients, medical transition might not be advisable [13]. The APA Task Force on the Treatment of Gender Identity Disorder notes that adolescents with gender dysphoria "should be screened carefully to detect the emergence of the desire for sex reassignment in the context

of trauma as well as for any disorder (such as schizophrenia, mania, psychotic depression) that may produce gender confusion. When present, such psychopathology must be addressed and taken into account prior to assisting the adolescent's decision as to whether or not to pursue sex reassignment or actually assisting the adolescent with the gender transition." [25].

Demographic and clinical changes for gender dysphoria

Although, by 2013, there was research documenting that a significant number of natal males experienced gender dysphoria that began during or after puberty, there was little information about this type of presentation for natal females [5]. Starting in the mid-2000s there has been a substantial change in demographics of patients presenting for care with most notably an increase in adolescent females and an inversion of the sex ratio from one favoring natal males to one favoring natal females [26–28]. And now, some clinicians have noted that they are seeing increasingly in their clinic, the phenomenon of natal females expressing a post-puberty rapid onset of gender dysphoria [14]. Some researchers have suggested that increased visibility of transgender people in the media, availability of information online, with a partial reduction of stigma may explain some of the increases in numbers of patients seeking care [27], but these factors would not explain the reversal of the sex ratio, disproportionate increase in adolescent natal females, and the new phenomenon of natal females experiencing gender dysphoria that begins during or after puberty. If there were cultural changes that made it more acceptable for natal females to seek transition [27], that would not explain why the reversal of the sex ratio reported for adolescents has not been reported for older adult populations [26]. There are many unanswered questions about potential causes for the recent demographic and clinical changes for gender dysphoric individuals.

Social and peer influences

Parental reports (on social media) of friend clusters exhibiting signs of gender dysphoria [1–4] and increased exposure to social media/internet preceding a child's announcement of a transgender identity [1–2, 9] raise the possibility of social and peer influences. In developmental psychology research, impacts of peers and other social influences on an individual's development are sometimes described using the terms peer contagion and social contagion, respectively. The use of "contagion" in this context is distinct from the term's use in the study of infectious disease, and furthermore its use as an established academic concept throughout this article is not meant in any way to characterize the developmental process, outcome, or behavior as a disease or disease-like state, or to convey any value judgement. Social contagion [29] is the spread of affect or behaviors through a population. Peer contagion, in particular, is the process where an individual and peer mutually influence each other in a way that promotes emotions and behaviors that can potentially have negative effects on their development [30]. Peer contagion has been associated with depressive symptoms, disordered eating, aggression, bullying, and drug use [30–31]. Internalizing symptoms such as depression can be spread via the mechanisms of co-rumination, which entails the repetitive discussion of problems, excessive reassurance seeking (ERS), and negative feedback [30, 32–34]. Deviancy training, which was first described for rule breaking, delinquency, and aggression, is the process whereby attitudes and behaviors associated with problem behaviors are promoted with positive reinforcement by peers [35, 36].

Peer contagion has been shown to be a factor in several aspects of eating disorders. There are examples in the eating disorder and anorexia nervosa literature of how both internalizing symptoms and behaviors have been shared and spread via peer influences [37–41] which may have relevance to considerations of a rapid onset of gender dysphoria occurring in AYAs. Friendship cliques can set the norms for preoccupation with one's body, one's body image,

and techniques for weight loss, and can predict an individual's body image concerns and eating behaviors [37–39]. Peer influence is intensified in inpatient and outpatient treatment settings for patients with anorexia and counter-therapeutic subcultures that actively promote the beliefs and behaviors of anorexia nervosa have been observed [39–41]. In these settings, there is a group dynamic where the "best" anorexics (those who are thinnest, most resistant to gaining weight, and who have experienced the most medical complications from their disease) are admired, validated, and seen as authentic while the patients who want to recover from anorexia and cooperate with medical treatment are maligned, ridiculed, and marginalized [39–41]. Additionally, behaviors associated with deceiving parents and doctors about eating and weight loss, referred to as the "anorexic tricks," are shared by patients in a manner akin to deviancy training [39–41]. Online environments provide ample opportunity for excessive reassurance seeking, co-rumination, positive and negative feedback, and deviancy training from peers who subscribe to unhealthy, self-harming behaviors. The pro-eating disorder sites provide motivation for extreme weight loss (sometimes calling the motivational content "thinspiration")[42–44]. Such sites promote validation of eating disorder as an identity, and offer "tips and tricks" for weight loss and for deceiving parents and doctors so that individuals may continue their weight-loss activities [42–44]. If similar mechanisms are at work in the context of gender dysphoria, this greatly complicates the evaluation and treatment of impacted AYAs.

In the past decade, there has been an increase in visibility, social media, and user-generated online content about transgender issues and transition [45], which may act as a double-edged sword. On the one hand, an increase in visibility has given a voice to individuals who would have been under-diagnosed and undertreated in the past [45]. On the other hand, it is plausible that online content may encourage vulnerable individuals to believe that nonspecific symptoms and vague feelings should be interpreted as gender dysphoria stemming from a transgender condition. Recently, leading international academic and clinical commentators have raised the question about the role of social media and online content in the development of gender dysphoria [46]. Concern has been raised that adolescents may come to believe that transition is the only solution to their individual situations, that exposure to internet content that is uncritically positive about transition may intensify these beliefs, and that those teens may pressure doctors for immediate medical treatment [25]. There are many examples on popular sites such as Reddit (www.reddit.com with subreddit ask/r/transgender) and Tumblr (www.tumblr.com) where online advice promotes the idea that nonspecific symptoms should be considered to be gender dysphoria, conveys an urgency to transition, and instructs individuals how to deceive parents, doctors, and therapists to obtain hormones quickly [47]. Fig 1 includes examples of online advice from Reddit and Tumblr.

Purpose

Rapid presentations of adolescent-onset gender dysphoria occurring in clusters of pre-existing friend groups are not consistent with current knowledge about gender dysphoria and have not been described in the scientific literature to date [1–8]. The purpose of this descriptive, exploratory research is to (1) collect data about parents' observations, experiences, and perspectives about their AYA children showing signs of a rapid onset of gender dysphoria that began during or after puberty, and (2) develop hypotheses about factors that may contribute to the onset and/or expression of gender dysphoria among this demographic group.

Materials and methods

The Icahn School of Medicine at Mount Sinai, Program for the Protection of Human Subjects provided approval of research for this project (HS#: 16–00744).

Instructions on lying	• "TL;DR find out what they want to hear if they're gonna give you T and then tell them just that. It's about getting treatment, not about being true to those around you. It's not their business and a lot of time doctors will screw stuff up for you."[a] • "…Get a story ready in your head, and as suggested keep the lie to a minimum. And only for stuff that can't be verified. Like how you were feeling, but was too afraid to tell anyone including your family."[b] • "I'd also look up the DSM for the diagnostic criteria for transgender and make sure your story fits it, assuming your psych follows it."[c]
Urgency to transition	• "…If you don't do it when you are young. You'll be miserable and unhappy with your body for the rest of your life."[d]
Vague and nonspecific symptoms called signs of GD	• "Signs of indirect gender dysphoria: 1. Continual difficulty with simply getting through the day. 2. A sense of misalignment, disconnect, or estrangement from your own emotions. 3. A feeling of just going through the motions in everyday life, as if you're always reading from a script. 4. A seeming pointlessness to your life, and no sense of any real meaning or ultimate purpose. 5. Knowing you're somehow different from everyone else, and wishing you could be normal like them…"[e]
	a. https://www.reddit.com/r/asktransgender/comments/2nt8gi/having_a_psych_eval_soon/#bottom-comments b. https://www.reddit.com/r/asktransgender/comments/4agf76/is_it_best_to_be_completely_honest_or_lie_a/ c. https://www.reddit.com/r/asktransgender/comments/4ihwar/what_things_should_i_never_tell_my_psychologist/ d. https://www.reddit.com/r/asktransgender/comments/3gpb94/at_the_final_stage_of_questioning_need_some/#bottom-comments e. https://transgenderteensurvivalguide.tumblr.com/post/62036014416/that-was-dysphoria-8-signs-and-symptoms-of

Fig 1. Example quotes of online advice from Reddit and Tumblr.

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Participants

During the recruitment period, 256 parents completed online surveys that met the study criteria. The sample of parents included more women (91.7%) than men (8.3%) and participants were predominantly between the ages of 45 and 60 (66.1%) (Table 1). Most respondents were White (91.4%), non-Hispanic (99.2%), and lived in the United States (71.7%). Most respondents had a Bachelor's degree (37.8%) or graduate degree (33.1%). The adolescents and young adults (AYAs) described by their parents were predominantly female sex at birth (82.8%) with an average current age of 16.4 years (range, 11–27 years). See Table 2.

Procedure

A 90-question survey instrument with multiple choice, Likert-type, and open-ended questions was created by the researcher. The survey was designed for parents (respondents) to complete about their adolescent and young adult children. The survey was uploaded onto Survey Monkey (SurveyMonkey, Palo Alto, CA, USA) via an account that was HIPPA-enabled. IRB approval for the study from the Icahn School of Medicine at Mount Sinai in New York, NY was received. Recruitment information with a link to the survey was placed on three websites where parents and professionals had been observed to describe what seemed to be a sudden or rapid onset of gender dysphoria (4thwavenow, transgender trend, and youthtranscriticalprofessionals), although the specific terminology "rapid onset gender dysphoria" did not appear on these websites until the recruitment information using that term was first posted on the sites. Website moderators and potential participants were encouraged to share the recruitment information and link to the survey with any individuals or communities that they thought might include eligible participants to expand the reach of the project through snowball sampling techniques. The survey was active from June 29, 2016 to October 12, 2016 (3.5 months)

Table 1. Demographic and other baseline characteristics of parent respondents.

Characteristics of Parent-respondents		n	%
Sex		254	
	Female	233	91.7
	Male	21	8.3
Age (y)		254	
	18–29	3	1.2
	30–44	74	29.1
	45–60	168	66.1
	>60	9	3.5
Race/Ethnicity*		255	
	White	233	91.4
	Other**	22	8.6
Country of Residence		254	
	US	182	71.7
	UK	39	15.4
	Canada	17	6.7
	Other	16	6.3
Education		254	
	Bachelor's degree	96	37.8
	Graduate degree	84	33.1
	Some college or Associates degree	63	24.8
	HS grad or GED	10	3.9
	<High School	1	0.4
Parent attitude on allowing gay and lesbian couples to marry legally		256	
	Favor	220	85.9
	Oppose	19	7.4
	Don't know	17	6.6
Parent belief that transgender people deserve the same rights and protections as others		255	
	Yes	225	88.2
	No	8	3.1
	Don't know	20	7.8
	Other	2	0.8

* may select more than one answer.

** declining order includes: Other, Multiracial, Asian, Hispanic.

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and took 30–60 minutes to complete. Participants completed the survey at a time and place of their own choosing. Data were collected anonymously and stored securely with Survey Monkey.

Participation in this study was voluntary and its purpose was clearly described in the recruitment information. Electronic consent was obtained. Participants had the option to withdraw consent at any time prior to submitting responses. Inclusion criteria were (1) completion of a survey with parental response that the child had a sudden or rapid onset of gender dysphoria; and (2) parental indication that the child's gender dysphoria began during or after puberty. There was logic embedded in the survey that disqualified surveys that answered "no" (or skipped the question) about whether the child had a sudden or rapid onset of gender dysphoria and 23 surveys were disqualified prior to completion (20 "no" answers and 3 skipped

Table 2. Demographic and other baseline characteristics of AYAs.

Characteristics of AYAs		n	%
AYA sex at birth (natal sex)		256	
	Female	212	82.8
	Male	44	17.2
AYA average current age (range of ages)	16.4 (11–27)	256	
Academic diagnoses		253	
	Gifted	120	47.4
	Learning Disability	11	4.3
	Both	27	10.7
	Neither	95	37.5
Natal female expressed sexual orientation before announcement*		212	
	Asexual	18	8.5
	Bisexual or Pansexual	78	36.8
	Gay or Lesbian	58	27.4
	Straight (Heterosexual)	75	35.4
	Did not express	57	26.9
Natal male expressed sexual orientation before announcement*		44	
	Asexual	4	9.1
	Bisexual or Pansexual	5	11.4
	Gay	5	11.4
	Straight (Heterosexual)	25	56.8
	Did not express	11	25.0
Gender dysphoria began		256	
	During puberty	125	48.8
	After puberty	131	51.2
Along with a rapid onset of GD, the AYA also:		256	
	Belonged to a friend group where one or multiple friends became transgender-identified during a similar timeframe	55	21.5
	Had an increase in social media/internet use	51	19.9
	Both of the above	116	45.3
	Neither	13	5.1
	Don't know	21	8.2

* may select more than one answer.

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answers). After cleaning the data for the 274 completed surveys, 8 surveys were excluded for not having a sudden or rapid onset of gender dysphoria and 10 surveys were excluded for not having gender dysphoria that began during or after puberty, which left 256 completed surveys for inclusion. As the survey was voluntary there was no refusal or dropout rate.

Recruitment sites

There were four sites known to post recruitment information about the research study. The first three were posted due to direct communication with the moderators of the sites. The fourth site posted recruitment information secondary to the snowball sampling technique. The following descriptions provide details about these sites.

4thwavenow

4thwavenow was created in 2015. The site, as seen in digitally archived screenshots from 2015 and 2016, stated that it is a "safe place for gender-skeptical parents and their allies", offered support for parents, and expressed concern about the rush to diagnose young people as transgender and the rush to proceed to medical treatment for them [2, 48]. By June 2016, the site had expanded to include the writing of several parents, "formerly trans-identified people, and people with professional expertise and experience with young people questioning their gender identity" [9]. The perspective of this site might be described as cautious about medical and surgical transition overall—specifically with a cautious or negative view of medical and surgical interventions for children, adolescents, and young adults and an accepting view that mature adults can make their own decisions about transition [2, 9].

Transgendertrend

Transgendertrend was founded in November 2015. The digitally archived screenshots from November 2015 and July 2016 "Who Are We?" section include the following description, "We are an international group of parents based mainly in the UK, US and Canada, who are concerned about the current trend to diagnose 'gender non-conforming' children as transgender. We reject current conservative, reactionary, religious-fundamentalist views about sexuality. We come from diverse backgrounds, some with expertise in child development and psychology, some who were themselves extreme gender non-conforming children and adolescents, some whose own children have self-diagnosed as 'trans' and some who know supportive trans adults who are also questioning recent theories of 'transgenderism'" [49]. In July of 2016, there was additional text added, expressing concern about legislation regarding public bathrooms and changing rooms [50].

Youth trans critical professionals

Youth Trans Critical Professionals was created in March 2016. The digitally archived screenshot from the April 2016 "About" section stated the following: "This website is a community of professionals "thinking critically about the youth transgender movement. We are psychologists, social workers, doctors, medical ethicists, and academics. We tend to be left-leaning, open-minded, and pro-gay rights. However, we are concerned about the current trend to quickly diagnose and affirm young people as transgender, often setting them down a path toward medical transition. Our concern is with medical transition for children and youth. We feel that unnecessary surgeries and/or hormonal treatments which have not been proven safe in the long-term represent significant risks for young people" [51].

Parents of transgender children

Parents of Transgender Children is a private Facebook group with more than 8,000 members [52]. The current "About" section states that requests to join the group "will be denied if you are not the parent (or immediate caregiver or family member) of a transgender, gender-fluid, gender-questioning, agender, or other gender-nonconforming child (of any age); or if you are uncooperative during screening" and that the "group is comprised of parents and parenting figures, as well as a select group of advocates INVITED by the admin[istrative] staff to assist & help us with understanding legal and other concerns" [52]. Although the parent discussions and comments are not viewable to non-members [52], this group is perceived to be pro -gender-affirming. The Parents of Transgender Children Facebook group is considered to be a site to find parents who are supportive of their child's gender identity [53], and it is listed as a

resource in a gender affirming parenting guide [54] and by gender affirming organizations [55–56].

Measures

Basic demographic and baseline characteristics

Basic demographic and baseline characteristic questions, including parental attitudes about LGBT rights, were included. Parents were asked about their children's mental health disorders and neurodevelopmental disabilities that were diagnosed before their child's onset of gender dysphoria as well as during and after. The question, "Has your child been formally identified as academically gifted, learning disabled, both, neither?" was used as a proxy to estimate rates of academic giftedness and learning disabilities. Questions about trauma and non-suicidal self-injury were also included as were questions about social difficulties described in a previous research study about gender dysphoric adolescents [13].

DSM-5 diagnostic criteria for gender dysphoria in children

The DSM 5 criteria for gender dysphoria in children consist of eight indicators of gender dysphoria [57]. To meet criteria for diagnosis, a child must manifest at least six out of eight indicators including the one designated A1, "A strong desire to be the other gender or an insistence that one is the other gender (or some alternative gender different from one's assigned gender)." Three of the indicators (A1, A7, and A8) refer to desires or dislikes of the child. Five of the indicators (A2-A6) are readily observable behaviors and preferences such as a strong preference or strong resistance to wearing certain kinds of clothing; a strong preference or strong rejection of specific toys, games and activities; and a strong preference for playmates of the other gender [57]. The eight indicators were simplified for language and parents were asked to note which, if any, their child had exhibited prior to puberty. The requirement of six-month duration of symptoms was not included.

DSM-5 diagnostic criteria for gender dysphoria in adolescents and adults

The DSM-5 criteria for gender dysphoria in adolescents and adults consist of six indicators of gender dysphoria [57]. To meet criteria for diagnosis, an adolescent or adult must manifest at least two of the six indicators. The six indicators were simplified for language, the first indicator was adjusted for a parent to answer about their child, and parents were asked to note which, if any, their child was expressing currently. The requirement of six-month duration of symptoms was not included.

Exposure to friend groups and social media/internet content

Survey questions were developed to describe AYA friend groups, including number of friends that became transgender-identified in a similar time period as the AYA, peer group dynamics and behaviors, and exposure to specific types of social media/internet content and messages that have been observed on sites popular with teens, such as Reddit and Tumblr.

Behaviors, outcomes, clinical interactions

Survey questions were developed to specifically quantify adolescent behaviors that had been described by parents in online discussions and observed elsewhere. Participants were asked to describe outcomes such as their child's mental well-being and parent-child relationship since becoming transgender-identified. Parents were also asked about experiences with clinicians and their children's disposition regarding steps taken for transition and duration of

transgender-identification both for children who were still transgender-identified and for children who were no longer transgender-identified.

Coping with strong or negative emotions

Two questions about the AYAs' ability to cope with negative and strong emotions were included. One question was "How does your child handle strong emotions? (please select the best answer)." Offered answers were "My child is overwhelmed by strong emotions and goes to great lengths to avoid feeling them," "My child is overwhelmed by strong emotions and tries to avoid feeling them," "My child neither avoids not seeks out strong emotions," "My child tries to seek out situations in order to feel strong emotions," "My child goes to great lengths to seek out situations in order to feel strong emotions," "None of the above," "I don't know." The other question was "How would you rate your child's ability to deal with their negative emotions and channel them into something productive?" An example was given regarding dealing with a low test grade by studying harder for the next test (excellent) or by ignoring it, throwing a tantrum, blaming the teacher or distracting themselves with computer games, alcohol, drugs, etc. (extremely poor). Offered answers were: excellent, good, fair, poor, extremely poor, and I don't know.

Data analysis

Statistical analyses of quantitative data were performed using Excel and custom shell scripts (Unix). Quantitative findings are presented as frequencies, percentages, ranges, means and/or medians. ANOVAs, chi-squared, and t-tests comparisons were used where appropriate using publicly available calculators and $p<0.05$ was considered significant. Qualitative data were obtained from open text answers to questions that allowed participants to provide additional information or comments. The types of comments and descriptions were categorized, tallied, and reported numerically. A grounded theory approach was selected as the analytic strategy of choice for handling the qualitative responses because it allowed the researcher to assemble the data in accordance with the salient points the respondents were making without forcing the data into a preconceived theoretical framework of the researcher's own choosing [58]. Illustrative respondent quotes and summaries from the qualitative data are used to illustrate the quantitative results and to provide relevant examples. Two questions were targeted for full qualitative analysis of themes (one question on friend group behaviors and one on clinician interactions). For these questions, a second reviewer with expertise in qualitative methods was engaged (MM). Both the author (LL) and reviewer (MM) independently analyzed the content of the open text answers and identified major themes. Discrepancies were resolved with collaborative discussion and themes were explored and refined until agreement was reached for the final lists of themes. Representative quotes for each theme were selected by LL, reviewed by MM, and agreement was reached.

Results

Baseline characteristics

Baseline characteristics (Table 1) included that the vast majority of parents favored gay and lesbian couples' right to legally marry (85.9%) and believed that transgender individuals deserve the same rights and protections as other individuals in their country (88.2%). Along with the sudden or rapid onset of gender dysphoria, the AYAs belonged to a friend group where one or multiple friends became gender dysphoric and came out as transgender during a similar time as they did (21.5%), exhibited an increase in their social media/internet use (19.9%), both

(45.3%), neither (5.1%), and don't know (8.2%) (Table 2). For comparisons, the first three categories will be combined and called "social influence" (86.7%) and the last two combined as "no social influence" (13.3%). Nearly half (47.4%) of the AYAs had been formally diagnosed as academically gifted, 4.3% had a learning disability, 10.7% were both gifted and learning disabled, and 37.5% were neither. Sexual orientation as expressed by the AYA prior to transgender-identification is listed separately for natal females and for natal males (Table 2). Overall, 41% of the AYAs expressed a non-heterosexual sexual orientation prior to disclosing a transgender-identification.

It is important to note that none of the AYAs described in this study would have met diagnostic criteria for gender dysphoria in childhood (Table 3). In fact, the vast majority (80.4%) had zero indicators from the DSM-5 diagnostic criteria for childhood gender dysphoria with 12.2% possessing one indicator, 3.5% with two indicators, and 2.4% with three indicators. Breaking down these results, for readily observable indicators (A2-6), 83.5% of AYAs had zero indicators, 10.2% had one indicator, 3.9% had two indicators, and 1.2% had three indicators. For the desire/dislike indicators (A1, A7, A8), which a parent would have knowledge of if the child expressed them verbally, but might be unaware if a child did not, 95.7% had zero indicators and 3.5% had one indicator. Parents responded to the question about which, if any, of the indicators of the DSM criteria for adolescent and adult gender dysphoria their child was

Table 3. DSM 5 Indicators for gender dysphoria.

Characteristics		n	%
AYAs who would have met diagnostic criteria for gender dysphoria in childhood		0	0
Number of DSM 5 indicators for gender dysphoria in children exhibited prior to puberty		255	
	Zero indicators	205	80.4
	One indicator	31	12.2
	Two indicators	9	3.5
	Three indicators	6	2.4
	Four indicators	3	1.2
Desire/Dislike Indicators (A1, A7, or A8)		255	
	Zero indicators	244	95.7
	One indicators	9	3.5
	Two indicators	0	0
	Three indicators	1	0.4
Readily observable indicators (A2-A6)		254	
	Zero indicators	212	83.5
	One indicator	26	10.2
	Two indicators	10	3.9
	Three indicators	3	1.2
	Four indicators	3	1.2
Average number of DSM 5 indicators for adolescent and adult gender dysphoria that the AYA is experiencing currently (range)			
	3.5 (range 0–6)	247	
AYAs currently experiencing two or more indicators of gender dysphoria for adolescents and adults		250	
	Yes	208	83.2
	No	40	16.0
	Don't know	2	0.8

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experiencing currently. The average number of positive current indicators was 3.5 (range 0–6) and 83.2% of the AYA sample was currently experiencing two or more indicators. Thus, while the focal AYAs did not experience childhood gender dysphoria, the majority of those who were the focus of this study were indeed gender dysphoric at the time of the survey completion.

The AYAs who were the focus of this study had many comorbidities and vulnerabilities predating the onset of their gender dysphoria, including psychiatric disorders, neurodevelopmental disabilities, trauma, non-suicidal self-injury (NSSI), and difficulties coping with strong or negative emotions (Table 4). The majority (62.5%) of AYAs had one or more diagnoses of a psychiatric disorder or neurodevelopmental disability preceding the onset of gender dysphoria (range of the number of pre-existing diagnoses 0–7). Many (48.4%) had experienced a traumatic or stressful event prior to the onset of their gender dysphoria. Open text descriptions of trauma were categorized as "family" (including parental divorce, death of a parent, mental disorder in a sibling or parent), "sex or gender related" (such as rape, attempted rape, sexual harassment, abusive dating relationship, break-up), "social" (such as bullying, social isolation), "moving" (family relocation or change of schools); "psychiatric" (such as psychiatric hospitalization), and medical (such as serious illness or medical hospitalization). Almost half (45.0%) of AYAs were engaging in non-suicidal self-injury (NSSI) behavior before the onset of gender dysphoria. Coping styles for these AYAs included having a poor or extremely poor ability to handle negative emotions productively (58.0%) and being overwhelmed by strong emotions and trying to avoid (or go to great lengths to avoid) experiencing them (61.4%) (Table 4). The majority of respondents (69.4%) answered that their child had social anxiety during adolescence; 44.3% that their child had difficulty interacting with their peers, and 43.1% that their child had a history of being isolated (not associating with their peers outside of school activities).

Announcing a transgender-identification

At the time the AYA announced they were transgender-identified ("came out"), most were living at home with one or both parents (88.3%) and a small number were living at college (6.2%). The average age of announcement of a transgender-identification was 15.2 years of age (range 10–21) (Table 5). Most of the parents (80.9%) answered affirmatively that their child's announcement of being transgender came "out of the blue without significant prior evidence of gender dysphoria." Respondents were asked to pinpoint a time when their child seemed not at all gender dysphoric and to estimate the length of time between that point and their child's announcement of a transgender-identity. Almost a third of respondents (32.4%) noted that their child did not seem gender dysphoric when they made their announcement and 26.0% said the length of time from not seeming gender dysphoric to announcing a transgender identity was between less than a week to three months. The most striking examples of "not seeming at all gender dysphoric" prior to making the announcement included a daughter who loved summers and seemed to love how she looked in a bikini, another daughter who happily wore bikinis and makeup, and another daughter who previously said, "I love my body!"

The majority of respondents (69.2%) believed that their child was using language that they found online when they "came out." A total of 130 participants provided optional open text responses to this question, and responses fell into the following categories: why they thought the child was using language they found online (51); description of what the child said but didn't provide a reason that they suspected the child was using language they found online (61); something else about the conversation (8) or the child (7) and don't know (3). Of the 51 responses describing reasons why respondents thought their child was reproducing language

Table 4. AYA baseline comorbidities and vulnerabilities predating the onset of gender dysphoria.

Characteristics		n	%
Mental disorder or neurodevelopmental disability diagnosed prior to the onset of gender dysphoria*		251	
	Anxiety	117	46.6
	Depression	99	39.4
	Attention Deficit Hyperactivity Disorder (ADHD)	29	11.6
	Obsessive Compulsive Disorder (OCD)	21	8.4
	Autism Spectrum Disorder (ASD)	20	8.0
	Eating Disorder	12	4.8
	Bipolar Disorder	8	3.2
	Psychosis	6	2.4
	None of above	94	37.5
	(Other) Borderline	3	1.2
	(Other) Oppositional Defiant Disorder	2	0.8
Traumatic or stressful experience prior to the onset of gender dysphoria		252	
	Yes	122	48.4
	No	91	36.1
	Don't know	38	15.1
	Other	1	0.4
Types of trauma*		113	
	Family	50	44.2
	Sex/Gender related	34	30.1
	Social	23	20.4
	Moving	20	17.7
	Psychiatric	9	8.0
	Medical	7	6.2
Non-suicidal self-injury (NSSI) before the onset of gender dysphoria		180	
		81	45.0
Ability to handle negative emotions productively		255	
	Excellent/Good	34	13.3
	Fair	70	27.5
	Poor/Extremely Poor	148	58.0
	Don't know	3	1.2
Coping style for dealing with strong emotions		254	
	Overwhelmed by strong emotions and tries to /goes to great lengths to avoid feeling them	156	61.4
	Neither avoids nor seeks out strong emotions	29	11.4
	Tries to/goes to great lengths to seeks out strong emotions	33	13.0
	Don't know	25	9.8
	None of the above	11	4.3
Social vulnerabilities		255	
	During adolescence child had social anxiety	177	69.4
	Child had difficulty interacting with their peers	113	44.3
	History of being isolated (not interacting with peers outside of school activities)	110	43.1
	Child felt excluded by peers throughout most of grade school	93	36.5
	Child had persistent experiences of being bullied before the onset of gender dysphoria	74	29.0

*may select more than one answer.

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Table 5. Announcing a transgender-identification.

Characteristics		n	%
Age of AYA when the AYA announced a transgender-identification (range)	15.2 average (10–21)	255	
Living arrangement at announcement		256	
	Living at home with one or both parents	226	88.3
	Living at college or university	16	6.2
	Other	14	5.5
AYA's announcement came from "out of the blue, without significant prior evidence of gender dysphoria"		256	
	Yes	207	80.9
	No	33	12.9
	Other	16	6.2
If a time was pinpointed when the child seemed not at all gender dysphoric, how long between that time and the child's announcement of a transgender-identity?		250	
	Did not seem at all gender dysphoric when they announced and transgender-identity	81	32.4
	Less than a week to 3 months	65	26.0
	4–6 months	31	12.4
	7–9 months	10	4.0
	10–12 months	29	11.6
	More than 12 months	20	8.0
	Don't know	14	5.6
Parent suspects that when the child first announced a transgender-identity, that the child used language that they found online		253	
	Yes	175	69.2
	No	53	20.9
	N/A	25	9.9
Parent thinks their child is correct in their child's belief of being transgender		255	
	Yes	6	2.4
	No	195	76.5
	Don't know	38	14.9
	Other	16	6.3
How soon after the announcement did the AYA ask for transition?		255	
	At the same time	86	33.7
	Between less than one week to one month	33	12.9
	2–5 months after announcement	26	10.2
	6 or more months after announcement	19	7.5
	Other	16	6.3
	N/A	75	29.4
Intention and request for transition*		189	
	AYA told the parent that they want cross-sex hormones	127	67.2
	AYA told the parent that they want to go to a gender therapist/gender clinic	111	58.7
	AYA told the parent that they want surgery	101	53.4
	AYA brought up the issue of suicides in transgender teens as a reason that their parent should agree to treatment	59	31.2

(*Continued*)

Table 5. (Continued)

Characteristics		n	%
AYA has very high expectation that transitioning will solve their problems in social, academic, occupational, or mental health areas		256	
	Yes	143	55.9
	No	13	5.1
	Don't know	100	39.1
AYA was willing to work on basic mental health before seeking gender treatments		253	
	Yes	111	43.9
	No	71	28.1
	Don't know	30	11.9
	N/A	41	16.2

*may select more than one answer.

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they found online, the top two reasons were that it didn't sound like their child's voice (19 respondents) and that the parent later looked online and recognized the same words and phrases that their child used when they announced a transgender identity (14 respondents). The observation that it didn't sound like their child's voice was also expressed as "sounding scripted," like their child was "reading from a script," "wooden," "like a form letter," and that it didn't sound like their child's words. Parents described finding the words their child said to them "verbatim," "word for word," "practically copy and paste," and "identical" in online and other sources. The following quotes capture these top two observations. One parent said, "It seemed different from the way she usually talked—I remember thinking it was like hearing someone who had memorized a lot of definitions for a vocabulary test." Another respondent said, "The email [my child sent to me] read like all of the narratives posted online almost word for word."

The following case summaries were selected to illustrate peer, trauma, and psychiatric contexts that might indicate more complicated clinical pictures.

- A 12-year-old natal female was bullied specifically for going through early puberty and the responding parent wrote "as a result she said she felt fat and hated her breasts." She learned online that hating your breasts is a sign of being transgender. She edited her diary (by crossing out existing text and writing in new text) to make it appear that she has always felt that she is transgender.
- A 14-year-old natal female and three of her natal female friends were taking group lessons together with a very popular coach. The coach came out as transgender, and, within one year, all four students announced they were also transgender.
- A natal female was traumatized by a rape when she was 16 years of age. Before the rape, she was described as a happy girl; after the rape, she became withdrawn and fearful. Several months after the rape, she announced that she was transgender and told her parents that she needed to transition.
- A 21-year-old natal male who had been academically successful at a prestigious university seemed depressed for about six months. Since concluding that he was transgender, he went on to have a marked decline in his social functioning and has become increasingly angry and

hostile to his family. He refuses to move out or look for a job. His entire family, including several members who are very supportive of the transgender community, believe that he is "suffering from a mental disorder which has nothing to do with gender."

- A 14-year-old natal female and three of her natal female friends are part of a larger friend group that spends much of their time talking about gender and sexuality. The three natal female friends all announced they were trans boys and chose similar masculine names. After spending time with these three friends, the 14-year-old natal female announced that she was also a trans boy.

The majority (76.5%) of the surveyed parents felt that their child was incorrect in their belief of being transgender (Table 5). More than a third (33.7%) of the AYAs asked for medical and/or surgical transition at the same time that they announced they were transgender-identified. Two thirds (67.2%) of the AYAs told their parent that they wanted to take cross-sex hormones; 58.7% that they wanted to see a gender therapist/gender clinic; and 53.4% that they wanted surgery for transition. Almost a third (31.2%) of AYAs brought up the issue of suicides in transgender teens as a reason that their parent should agree to treatment. More than half of the AYAs (55.9%) had very high expectations that transitioning would solve their problems in social, academic, occupational or mental health areas. While 43.9% of AYAs were willing to work on basic mental health before seeking gender treatments, a sizable minority (28.1%) were not willing to work on their basic mental health before seeking gender treatment. At least two parents relayed that their child discontinued psychiatric care and medications for pre-existing mental health conditions once they identified as transgender. One parent, in response to the question about if their child had very high expectations that transitioning would solve their problems elaborated, "Very much so. [She] discontinued anti-depressant quickly, stopped seeing psychiatrist, began seeing gender therapist, stopped healthy eating. [She] stated 'none of it' (minding what she ate and taking her Rx) 'mattered anymore.' This was her cure, in her opinion."

Friend-group exposure

The adolescent and young adult children were, on average, 14.4 years old when their first friend became transgender-identified (Table 6). Within friendship groups, the average number of individuals who became transgender-identified was 3.5 per group. In 36.8% of the friend groups described, the majority of individuals in the group became transgender-identified. The order that the focal AYA "came out" compared to the rest of their friendship group was calculated from the 119 participants who provided the number of friends coming out both before and after their child and 74.8% of the AYAs were first, second or third of their group. Parents described intense group dynamics where friend groups praised and supported people who were transgender-identified and ridiculed and maligned non-transgender people. Where popularity status and activities were known, 60.7% of the AYAs experienced an increased popularity within their friend group when they announced a transgender-identification and 60.0% of the friend groups were known to mock people who were not transgender or LGBTIA (lesbian, gay, bisexual, transgender, intersex, or asexual).

For the question about popularity changes when the child came out as having a transgender-identification, 79 participants provided optional open text responses which were categorized as: descriptions of the responses the child received (39); descriptions of the friends (14); description that the child did not "come out" to friends (8); not sure (9); speculation on how the child felt from the response (4), other (5). Of the 39 descriptions of responses, 19 of these responses referred to positive benefits the child received after coming out including positive attention, compliments, increased status, increased popularity, increased numbers of online

Table 6. Friend group exposure.

Characteristics		n	%
The AYA has been part of a friend group where one or more friends has come out as transgender around a similar timeframe as they did		254	
	Yes	176	69.3
	No	47	18.5
	Don't know	31	12.2
Age of AYA when their first friend became transgender-identified (range)	14.4 average (11–21)	174	
Number of friends from the friendship group who became gender dysphoric average (range)	3.5 average (2–10)	138	
Where numbers known, friend groups where the MAJORITY of the friends in the friendship group became transgender-identified		125	
	Yes	46	36.8
	No	79	63.2
Order of the AYAs "coming out" compared to the others in the friendship group		119	
	First in the friendship group	4	3.4
	Second in the friendship group	52	43.7
	Third in the friendship group	33	27.7
	Fourth in the friendship group	18	15.1
	Fifth in the friendship group	5	4.2
	Sixth or Seventh in the friendship group	6	5.0
Where popularity status known, change in popularity within friend group when AYA announced their transgender-identification		178	
	Increased popularity	108	60.7
	Decreased popularity	11	6.2
	Unchanged popularity	59	33.1
Where friend group activities known, friend group known to mock people who are not transgender/LGBT		145	
	Yes	87	60.0
	No	58	40.0

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followers, and improved protection from ongoing bullying. The following are quotes from parents about the perceived benefits of transgender-identification afforded to their child. One respondent said, "Great increase in popularity among the student body at large. Being trans is a gold star in the eyes of other teens." Another respondent explained, "not so much 'popularity' increasing as 'status'. . .also she became untouchable in terms of bullying in school as teachers who ignored homophobic bullying . . .are now all at pains to be hot on the heels of any trans bullying." Seven respondents described a mixed response where the child's popularity increased with some friends and decreased with others. Seven respondents described a neutral response such as "All of the friends seemed extremely accepting." Two described a temporary increase in their child's popularity: "There was an immediate rush of support when he came out. Those same friends have dwindled to nothing as he rarely speaks to any of them now." Another described the loss of friends. And two parents described that "coming out" prevented the loss of friends explained by one respondent as "to not be trans one would not have been included in his group."

Several AYAs expressed significant concern about the potential repercussions from their friend group when they concluded that they were not transgender after all. There were two unrelated cases with similar trajectories where the AYAs spent some significant time in a different setting, away from their usual friend group, without access to the internet. Parents described that these AYAs made new friendships, became romantically involved with another person, and during their time away concluded that they were not transgender. In both cases, the adolescents, rather than face their school friends, asked to move and transfer to different high schools. One parent said that their child, ". . .couldn't face the stigma of going back to school and being branded as a fake or phony. . . . Or worse, a traitor or some kind of betrayer. . .[and] asked us if we could move." In the other case, the parent relayed that their child thought none of the original friends would understand and expressed a strong desire to ". . .get out of the culture that 'if you are cis, then you are bad or oppressive or clueless.'" Both families were able to relocate and both respondents reported that their teens have thrived in their new environments and new schools. One respondent described that their child expressed relief that medical transition was never started and felt there would have been pressure to move forward had the family not moved away from the peer group.

Qualitative analysis

The open-ended responses from the question about whether the AYAs and friends mocked, teased, or made fun of individuals who weren't transgender or LGBTIA was selected for additional qualitative analysis. Seven major themes were identified from the comments provided by participants and are described, with representative supporting quotes.

Theme: Groups targeted. The groups targeted for mocking by the friend groups are often heterosexual (straight) people and non-transgender people (called "cis" or "cisgender"). Sometimes animosity was also directed towards males, white people, gay and lesbian (non-transgender) people, aromantic and asexual people, and "terfs". One participant explained, "They are constantly putting down straight, white people for being privileged, dumb and boring." Another participant elaborated, "In general, cis-gendered people are considered evil and unsupportive, regardless of their actual views on the topic. To be heterosexual, comfortable with the gender you were assigned at birth, and non-minority places you in the 'most evil' of categories with this group of friends. Statement of opinions by the evil cis-gendered population are consider phobic and discriminatory and are generally discounted as unenlightened."

Theme: Individuals targeted. In addition to targeting specific groups of people for mocking, the AYAs and their friend groups also directed mocking towards individuals in the AYAs' lives such as parents, grandparents, siblings, peers, allies, and teachers. The following quotes describe individuals targeted. One participant said, "They call kids who are not LGBT dumb and cis. And the mocking has been aimed at my transgender-identified child's [sibling]." Another parent said, "They definitely made fun of parents and teachers who did not agree with them." And a third participant said, ". . .they were asked to leave [a school-based LGBT club] because they were not queer enough [as straight and bisexual allies]. [One of them] was [then] bullied, harassed and denounced online."

Theme: Behaviors occurred both in person and in online settings. Parents observed the behaviors both in-person and in online settings, and specifically mentioned seeing posts and conversations on Tumblr, Twitter, Facebook, and Instagram. On participant said, "They speak with derision about how cis-gendered people do not understand them and are so close-minded." Another participant said, "I hear them disparaging heterosexuality, marriage and nuclear families." Another participant said, "On my daughter's Tumblr blog, she has liked or favorited or re-posted disparaging comments about those who aren't transgender or seem to

misunderstand the transgender identity." And another parent reported, "Her real life friends don't [mock non-LGBT people] but online they are always swapping jokes and comments about cisgender and about transphobia."

Theme: Examples of behaviors. Participants gave many examples of the observed behaviors that were mocking towards non-transgender people and non-LGB people. One participant said, "My daughter called me a 'breeder' and says things in a mocking 'straight person voice'. Her friends egg her on when she does this." Another parent offered, "If they aren't mocking 'cis' people, they are playing pronoun police and mocking people who can't get the pronouns correct." Another participant said, "New vocabulary includes 'cis-stupid' and 'cis-stupidity.'" And a fourth participant described, "They assume anyone that is critical about being transgender (even just asking questions) is either ignorant or filled with hate."

Theme: Emphasizing victimhood. Participants described that their children and friend group seemed to focus on feeling as though they were victims. One participant described, "They seem to wear any problems they may have, real or perceived like badges of honor. . .I feel like they want to believe they are oppressed & have really 'been through life', when they have little life experience." Another participant said, ". . .there is a lot of feeling like a victim [and being] part of a victimized club." Another parent said "But all talk is very 'victim' centered". And finally, another said, "They passionately decry 'Straight Privilege' and 'White Male Privilege'—while emphasizing their own 'Victimhood.'"

Theme: Consequences of behaviors. A few participants describe that because of their child's behavior, there were consequences, including making it difficult for one child to return to her school and the following description from another parent, "Most relatives have blocked her on [social media] over constant jokes regarding cis and straight people."

Theme: Fueling the behaviors. In some cases, parents describe a synergistic effect of kids encouraging other kids to persist in the behavior as was described in a previous quote, "Her friends egg her on when she does this" as well as the following, "Lots of discussion revolving around how their teachers 'discriminate' or are 'mean' to them based on their declared LGBTIA identity, and they get each other riled up convincing each other of their persecution by these perceived wrongs . . . privately they mock our intolerance, and in person act upon these false beliefs by treating us as people out to get them. . ."

Internet/social media exposure

In the time period just before announcing that they were transgender, 63.5% of AYAs exhibited an increase in their internet/social media (Table 7). To assess AYA exposure to existing online content, parents were asked what kind of advice their child received from someone/people online. AYAs had received online advice including how to tell if they were transgender (54.2%); the reasons that they should transition right away (34.7%); that if their parents did not agree for them to take hormones that the parents were "abusive" and "transphobic" (34.3%); that if they waited to transition they would regret it (29.1%); what to say and what not to say to a doctor or therapist in order to convince them to provide hormones (22.3%); that if their parents were reluctant to take them for hormones that they should use the "suicide narrative" (telling the parents that there is a high rate of suicide in transgender teens) to convince them (20.7%); and that it is acceptable to lie or withhold information about one's medical or psychological history from a doctor or therapist in order to get hormones/get hormones faster (17.5%). Two respondents, in answers to other questions, described that their children later told them what they learned from online discussion lists and sites. One parent reported, "He has told us recently that he was on a bunch of discussion lists and learned tips there. Places where teens and other trans people swap info. Like to use [certain, specific] words [with] the

Table 7. Internet/Social media exposures.

		n	%
AYAs internet/social media use just prior to announcement		255	
	Increased social media/internet use	162	63.5
	Decreased social media/internet use	3	1.2
	Unchanged social media/internet use	49	19.2
	Don't know	41	16.1
AYA exposure to internet content/advice*		251	
	How to tell if they are transgender	136	54.2
	The reasons that they should transition right away	87	34.7
	That if their parents did not agree to take them for hormones, that the parents are "abusive" and "transphobic"	86	34.3
	That if they waited to transition they would regret it	73	29.1
	That if they didn't transition immediately they would never be happy	72	28.7
	How to order physical items (binders, packers, etc) without parents finding out	67	26.7
	What to say and what NOT to say to a doctor or therapist in order to convince them to provide hormones	56	22.3
	That if their parents are reluctant to take them for hormones, that they should use the "suicide narrative" to convince them (telling the parents that there is a high rate of suicide in transgender teens.)	52	20.7
	Medical advice about the risks and benefits of hormones	55	21.9
	Medical advice about the risks and benefits of surgery	47	18.7
	That it is acceptable to lie to or withhold information about one's medical or psychological history from a doctor or therapist in order to get hormones/ get hormones faster	44	17.5
	How to hide physical items from parents	40	15.9
	How to hide or make excuses for physical changes	26	10.4
	How to get money from others online in order to pay for medications, etc	25	10.0
	How to get hormones from online sources	24	9.6
	How to hide hormones from parents	21	8.4
	I don't know if my child received online advice about these topics	127	50.6

*may select more than one answer.

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therapist when describing your GD, because [they are] code for potentially suicidal and will get you a diagnosis and Rx for hormones." Another parent disclosed, "The threat of suicide was huge leverage. What do you say to that? It's hard to have a steady hand and say no to medical transition when the other option is dead kid. She learned things to say that would push our buttons and get what she wanted and she has told us now that she learned that from trans discussion sites."

Parents identified the sources they thought were most influential for their child becoming gender dysphoric. The most frequently answered influences were: YouTube transition videos (63.6%); Tumblr (61.7%); a group of friends they know in person (44.5%); a community/group of people that they met online (42.9%); a person they know in-person (not online) 41.7%. In contrast to the majority of responses, two participants commented that they didn't think the

sources influenced their child to become gender dysphoric, rather they gave their child a name for their feelings or gave the child confidence to come out. The following quotes illustrate the dominant quantitative findings. One parent wrote, "We believe the biggest influence was the online pro-transition blogs and youtube videos. We feel she was highly influenced by the 'if you are even questioning your gender-you are probably transgender' philosophy. . .In the 'real world' her friends, other trans peers, and newfound popularity were additional areas of reinforcement." Another respondent described the online influence as part of a different question, "I believe my child experienced what many kids experience on the cusp of puberty—uncomfortableness!—but there was an online world at the ready to tell her that those very normal feelings meant she's in the wrong body."

Mental well-being, mental health, and behaviors

The trajectories of the AYAs were not consistent with the narrative of discovering one's authentic self and then thriving. Specifically, parents reported that, after "coming out," their children exhibited a worsening of their mental well-being. Additionally, parents noted worsening of the parent-child relationship and observed that their children had narrowed their interests (Table 8). Although small numbers of AYAs had improvement in mental well-being (12.6%), parent-child relationship (7.4%), grades/academic performance (6.4%), and had broadened their interests and hobbies (5.1%); the most common outcomes were worsened mental well-being (47.2%); worsened parent child relationship (57.3%); unchanged or mixed grades/academic performance (59.1%); and a narrowed range of interests and hobbies

Table 8. Outcomes and behaviors.

Characteristics		n	%
AYA mental well-being since announcement		254	
	Worse	120	47.2
	Better	32	12.6
	Unchanged or mixed	101	39.8
	Don't know	1	0.4
Parent-child relationship since announcement		253	
	Worse	145	57.3
	Better	18	7.4
	Unchanged or mixed	89	35.2
	Don't know	1	0.4
Grades/academic performance		220	
	Worse	76	34.5
	Better	14	6.4
	Unchanged/mixed	130	59.1
Range of interests and hobbies		255	
	Much broader	2	0.8
	Somewhat broader	11	4.3
	Unchanged	93	36.5
	Somewhat narrower	64	25.1
	Much narrower	56	22.0
	There are very few topics outside of transgender issues that my child is interested in	28	11.0
	Don/t know	1	0.4

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(58.1%). One parent describing her child's trajectory offered, "After announcing she was transgender, my daughter's depression increased significantly. She became more withdrawn. She stopped participating in activities which she previously enjoyed, stopped participating in family activities, and significantly decreased her interaction with friends. Her symptoms became so severe that she was placed on medication by her physician." Table 9 describes cumulative rates of mental illness and neurodevelopmental disability at the time of survey.

A total of 63.8% of the parents have been called "transphobic" or "bigoted" by their children for one or more reasons, the most common being for: disagreeing with the child about the child's self-assessment of being transgender (51.2%); recommending that the child take more time to figure out if their feelings of gender dysphoria persist or go away (44.6%); expressing concerns for the child's future if they take hormones and/or have surgery (40.4%); calling their child by the pronouns they used to use (37.9%); telling the child they thought that hormones or surgery would not help them (37.5%); recommending that their child work on other mental health issues first to determine if they are the cause of the dysphoria (33.3%); calling the child by their birth name (33.3%); or recommending a comprehensive mental health evaluation before starting hormones and/or surgery (20.8%) (Table 10). There were eight cases of estrangement. Estrangement was child-initiated in six cases where the child ran away, moved out, or otherwise refused contact with parent. There were two cases where the estrangement was initiated by the parent because the AYA's outbursts were affecting younger siblings or there was a threat of violence made by the AYA to the parent.

AYAs are reported to have exhibited one or more of the following behaviors: expressed distrust of information about gender dysphoria and transgenderism coming from mainstream doctors and psychologists (51.8%); tried to isolate themselves from their family (49.4%); expressed that they only trust information about gender dysphoria and transgenderism that comes from transgender websites and/or transgender people and sources (46.6%); lost interest in activities where participants aren't predominantly transgender or LGBTIA (32.3%); stopped spending time with friends who were not transgender (25.1%); expressed distrust of people who were not transgender (22.7%) (Table 10). Many AYAs have also: withdrawn from their family (45.0%); told other people or posted on social media that their parent is "transphobic," "abusive," or "toxic" because the parent does not agree with child's self-assessment of being transgender (43.0%); refused to speak to their parent (28.5%), defended the practice of lying to or withholding information from therapists or doctors in order to obtain hormones for transition more quickly (16.5%); tried to run away (6.8%). The behaviors and outcomes listed above

Table 9. AYA Cumulative mental disorder and neurodevelopmental disability diagnoses.

Characteristics		n	%
Mental disorder or neurodevelopmental disability		243	
	Anxiety	154	63.4
	Depression	143	58.8
	Attention Deficit Hyperactivity Disorder (ADHD)	36	14.8
	Obsessive Compulsive Disorder (OCD)	30	12.3
	Autism Spectrum Disorder (ASD)	30	12.3
	Eating Disorder	17	7.0
	Bipolar Disorder	17	7.0
	Psychosis	8	3.3
	None of above	52	21.4
	(Other) Borderline	7	2.9
	(Other) Oppositional Defiant Disorder	2	0.8

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Table 10. Additional behaviors.

		n	%
Parents have been called "transphobic" or "bigoted" by their child for the following reasons*		240	
	Disagreeing with their child about the child's assessment of being transgender	123	51.2
	Recommending that their child take more time to figure out if their feelings of gender dysphoria persist or go away	107	44.6
	Expressing concerns for their child's future if the child were to take hormones and/or have surgery	97	40.4
	Referring to their child by the pronouns that they used to use before announcement	91	37.9
	Telling their child that they thought hormones/surgery would not help them	90	37.5
	Calling their child by the child's birth name	80	33.3
	Recommending that their child work on other mental health issues first to determine if they are the cause of their dysphoria	80	33.3
	Recommending therapy for basic mental health issues (not related to gender)	74	30.8
	Recommending a comprehensive evaluation before starting hormones and/or surgery	50	20.8
	None of the above	87	36.2
Distrust and isolating behaviors exhibited by AYAs*		251	
	Expressed distrust of information about gender dysphoria and transgenderism coming from mainstream doctors and psychologists	130	51.8
	Tried to isolate themselves from their family	124	49.4
	Expressed that they ONLY trust information about gender dysphoria and transgenderism that comes from transgender websites and/or transgender people and sources	117	46.6
	Lost interest in activities where participants aren't predominantly transgender or LGBTIA	81	32.3
	Lost interest in activities that were not related to transgender or LGBTIA issues	65	25.9
	Stopped spending time with friends who are not transgender	63	25.1
	Expressed distrust of people who are not transgender	57	22.7
	Expressed hostility towards people who are not transgender	46	18.3
	None of the above	44	17.5
Other behavior and outcomes for AYAs*		249	
	Withdrawn from family	112	45.0
	Told other people or posted on social media that their parent is "transphobic", "abusive", or "toxic" because the parent does not agree with the child's assessment of being transgender	107	43.0
	Refused to speak to parent	71	28.5
	Defended the practice of lying to or withholding information from therapists or doctors in order to obtain hormones for transition more quickly	41	16.5
	Tried to run away	17	6.8
	Been unable to obtain a job	25	10.0
	Been unable to hold a job	18	7.2
	Dropped out of college	12	4.8
	Dropped out of high school	12	4.8
	Needed to take a leave of absence from college	12	4.8
	Been fired from a job	9	3.6
	Needed a leave of absence from high school	1	0.4
	None of the above	86	34.5
For any of the above, is this a significant change from the child's baseline behavior?		161	
	Yes	115	71.4
	No	46	28.6

*may select more than one answer.

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were considered significant changes from the child's baseline behaviors for 71.4% of respondents checking any of the items.

There was a subset of eight cases where parents described watching their child have declining mental well-being as they became gender dysphoric and transgender-identified and then had improving mental well-being as they dropped or backed away from a transgender-identification. One parent described a marked change in her daughter when she was out of school temporarily. "[Her] routine was disrupted. She spent all day on the internet, and lost her many school friends—her only friends were on-line and members of the trans community. In three months, my daughter announced she is trans, gender dysphoric, wants binders and top surgery, testosterone shots. . .she started self-harming. Now back at school. . .she tweeted that she's so young, isn't sure if she is trans, no longer wants to be referred to by the male name she had chosen. . .Since she has started back at school and is being exposed to a wide variety of people she is WAY happier." Another parent described, "My daughter's insight has improved considerably over the last few years, and she has also outgrown the belief that she is transgender. My daughter actually seemed to be looking for a reason for her depression which is now being successfully treated. . .My daughter is MUCH happier now that she is being treated for her genuine issues. Coming out as trans made her much worse for a while."

There was a subset of 30 cases where the AYAs' transgender-identification occurred in the context of a decline in their ability to function (such as dropping out of high school or college, needing a leave of absence from high school or college, and/or being unable to obtain or hold a job), which parents reported as a significant change from their child's baseline behavior. The declines were substantial as 43.3% of these AYAs had been identified as academically gifted students (some described as top of their class in high school, earning outstanding grades at prestigious universities) before they began to fail their classes, drop out of high school or college, and became unable to hold a job. In most of these cases (76.7%), there was one or more psychiatric diagnosis made at the same time or within the year (60.0%) or within two years (16.7%) of the AYA's new transgender-identification. Of the 23 individuals who had a psychiatric diagnosis made within two years of assuming a transgender-identification, 91.3% (21/23) were diagnosed with depression; 73.9% (17/23) with anxiety; 26.0% (6/23) with bipolar disorder; 17.4% (4/23) with borderline personality disorder; 8.7% (2/23) with psychosis/psychotic episode: and 8.7% (2/23) with an eating disorder.

Clinical encounters

Parents were asked if their child had seen a gender therapist, gone to a gender clinic, or seen a physician for the purpose of beginning transition and 92 respondents (36.2%) answered in the affirmative (Table 11). Many of the respondents clarified that their child had seen a clinician regarding their gender dysphoria for evaluation only. Although participants were not asked directly what kind of provider their child saw, specialties that were mentioned in answers included: general psychologists, pediatricians, family doctors, social workers, gender therapists, and endocrinologists. For parents who knew the content of their child's evaluation, 71.6% reported that the clinician did not explore issues of mental health, previous trauma, or any alternative causes of gender dysphoria before proceeding and 70.0% report that the clinician did not request any medical records before proceeding. Despite all of the AYAs in this study sample having an atypical presentation of gender dysphoria (no gender dysphoria prior to puberty), 23.8% of the parents who knew the content of their child's visit reported that the child was offered prescriptions for puberty blockers and/or cross-sex hormones at the first visit.

One participant described, "For the most part, I was extremely frustrated with providers NOT acknowledging the mental disorder, anxiety, depression, etc before recommending

Table 11. Interactions with clinicians.

		n	%
Did the AYA see a gender therapist, go to a gender clinic or see a physician for the purpose of transition?		254	
	No	151	59.4
	Yes	92	36.2
	Don't know	11	4.3
Did the therapist/physician/clinic staff explore issues of mental health, previous trauma, or any alternative causes of gender dysphoria before proceeding?		100	
	Yes	21	21.0
	No	53	53.0
	Don't know	26	26.0
Did the therapist/physician/clinic staff request any medical records before proceeding?		99	
	Yes	21	21.2
	No	49	49.5
	Don't know	29	29.3
Of parents who knew the content of the visit, did the AYA receive an Rx for puberty blockers and/or cross-sex hormones at their first visit?		80	
	AYA received an Rx for puberty blockers and/or cross-sex hormones at their first visit	17	21.2
	AYA was offered a Rx for puberty blockers and/or cross-sex hormones at their first visit, but AYA or parent declined	2	2.5
	Total number of AYAs who received or were offered an Rx at first visit	19	23.8
	AYAs who did not receive/were not offered an Rx at their first visit	61	76.2
Did AYA misrepresent their history to the doctor or relay their history accurately?		96	
	Parent is reasonably sure or positive that their child misrepresented or omitted parts of their history	64	66.7
	Parent is reasonable sure or positive that their child relayed their history completely and accurately	12	12.5
	Don't know	20	20.8

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hormone replacement therapy." And two participants described how the clinician treating their child's gender dysphoria refused to speak with the patients' primary care physicians. One participant said, "When we phoned the clinic, the doctor was hostile to us, told us to mind our own business. Our family doctor tried to reach our son's new doctor, but the trans doctor refused to speak with her." Another respondent shared "The pediatrician/'gender specialist' did not return calls or emails from the primary care physician who requested to talk with her about my son's medical history before she saw and treated him. . .she disregarded all historical information provided by the family and primary care physician. . .did not verify any information provided by my. . .son at his first visit even after being provided with multiple other historical sources which differed significantly from his story."

When asked about whether their child relayed their history completely and accurately to clinicians or whether they misrepresented or omitted parts of their history, of those who knew the content of their child's visit, 84.2% of the parent respondents were reasonably sure or positive that their child had misrepresented or omitted parts of their history. Twenty-eight participants provided optional open text responses to this question and the responses were categorized into: describing how the parent knew that the child misrepresented their history

(5); the content of what the child misrepresented (6 misrepresenting in general, 4 misrepresenting to the clinician for a total of 10 examples); don't know/not sure (4); expressing certainty (1); and not relevant (8). For the five participants describing how they knew, the reasons included: being present when it happened, reading the report from the gender specialist, being told by their child that the child had misrepresented the truth, and being informed by the child's psychiatrist. One respondent shared, "I have read the report from the gender specialist and it omits all the relevant context painting an almost unrecognizable picture of my son." A second parent simply responded, "I was present." Another respondent relayed about their (natal male) child, "My daughter told me and her mother that the first therapist she saw asked her stereotypical questions. . .She was afraid that if she didn't describe herself as a 'typical girl' she would not be believed." And finally, one respondent wrote, "He has said now that he did [misrepresent his history] and used key words he was advised to say." Ten participants provided 13 examples of the content of misrepresentations and of these, 6 examples could have been easily verified to be false (claiming to be under the care of a psychiatrist, claiming to be on medication to treat a psychiatric condition, how one was doing academically, and claiming a childhood history of having playmates of one sex when the opposite was observed, and claiming strong childhood preferences for specific toys and clothing that is the opposite of what multiple individuals observed). Three of the content examples would have been challenging to verify as false including: how one was feeling as a child, how one was feeling when a picture was taken, and whether one was from an abusive home. And four of the content examples did not provide enough information to determine if they would be easy or challenging to verify as false, such as "My child distorts her history and our family life on a regular basis," and "He has created an entire narrative that just isn't true."

In addition to the previously mentioned case where the child literally rewrote her history by editing her diary, there were seven respondents who conveyed a process where their child was constantly rewriting their personal history to make it consistent with the idea that they always were transgender and/or had created a childhood history that was not what others had observed. It is unclear whether this process was deliberate or if the individuals were unaware of their actions. The following are quotes describing this phenomenon. One parent said, ". . .she is actively rewriting her personal history to support the idea that she was always trans." Another respondent added,". . .my daughter denies events I recollect from her childhood and puberty that contradicts her narrative of 'always knowing she was a boy.'" Another respondent offered, "He is rewriting his personal history to suit his new narrative." And a fourth respondent described, "[Our] son has completely made up his childhood to include only girl friends and dressing up in girls clothes and playing with dolls, etc. This is not the same childhood we have seen as parents."

Qualitative analysis

The open-ended comments from the question about whether the clinician explored mental health, trauma or alternative causes of gender dysphoria before proceeding were selected for qualitative analysis. Nine major themes emerged from the data. Each theme is described in the following paragraphs with supporting quotes from participants.

Theme: Failure to explore mental health, trauma or alternative causes of GD. Parents described that clinicians failed to explore their child's mental health, trauma, or any alternative causes for the child's gender dysphoria. This failure to explore mental health and trauma occurred even when patients had a history of mental health disorder or trauma, were currently being treated for a mental health disorder, or were currently experiencing symptoms. One participant said, "Nothing other than gender dysphoria was considered to explain my daughter's

desire to transition." Another participant said, "My daughter saw a child therapist and the therapist was preparing to support transgendering and did not explore the depression and anxiety or previous trauma."

Theme: Insufficient evaluation. Another theme was insufficient evaluation where parents described evaluations that were too limited or too superficial to explore mental health, trauma or alternative causes of gender dysphoria. The following are three quotes by three different parents describing insufficient evaluations. One parent said, "The exploration was egregiously insufficient, very shallow, no effort to ask questions, engage in critical thinking about coexisting anxiety, or put on the brakes or even slow down." Another participant stated, "When we tried to give our son's trans doctor a medical history of our son, she refused to accept it. She said the half hour diagnosis in her office with him was sufficient, as she considers herself an expert in the field." And a third parent wrote, "We were STUNNED by the lack of information, medical history sought by therapist and radical treatment suggestion. [One]visit. The idea is, 'if they say they were born in the wrong body, they are. To question this will only hurt her and prolong her suffering.' [Our] daughter has had trauma in [the] past. [She] never was asked about it. [The] therapist did not ask parents a single question about our daughter."

Theme: Unwillingness or disinterest in exploring mental health, trauma or alternative causes of GD. Parents described that clinicians did not seem interested or willing to explore alternative causes. One parent described. "Her current therapist seems to accept her self diagnosis of gender dysphoria and follows what she says without seeming too much interested in exploring the sexual trauma in her past." Another parent wrote, "The Asperger psychiatrist did not seem to care whether our daughter's gender dysphoria stemmed from Asperger's. If our daughter wanted to be male, then that was enough." And a third parent said. "The therapist did ask about those issues but seemed to want to accept the idea wholeheartedly that my daughter was transgender first and foremost, all other factors aside."

Theme: Mental health was explored. A few parents had the experience where the clinician either made an appropriate referral for further evaluation or the issues had been addressed previously. One parent said, "[The] previous mental health issues [were] already explored by other therapists ([my] child was in therapy and medicated before coming out as transgender)."

Theme: Failure to communicate with patients' medical providers. Several participants described clinicians who were unwilling to communicate with primary care physicians and mental health professionals even those professionals who were currently treating the patient. One participant relayed, "She did not review the extensive psychiatric records that were available in a shared EMR [electronic medical record] and she did not consult with his outpatient psychiatrist prior to or after starting cross-sex hormonal therapy." Another parent said, "My child had been seen for mental health issues for several years before presenting this new identity, but the endocrinologist did not consult the mental health professionals for their opinions before offering hormones."

Theme: Misrepresentation of information by the patient. Several participants described how their child misrepresented their history to the clinician, thus, limiting the clinician's ability to adequately explore mental health, trauma and alternative causes. One participant wrote, "At [the] first visit, [my] daughter's dialogue was well-rehearsed, fabricated stories about her life told to get [the] outcome she desired. She parroted people from the internet." Another parent reported, "My son concealed the trauma and mental health issues that he and the family had experienced." And a third parent said, "I overheard my son boasting on the phone to his older brother that 'the doc swallowed everything I said hook, line and sinker. Easiest thing I ever did.'"

Theme: Transition steps were pushed by the clinician. Some parents described clinicians who seemed to push the process of transition before the patient asked for it. One parent described that the doctor gave her daughter a prescription that she didn't ask for, "The family

doctor who gave her the Androgel Rx [prescription] did NOT ask her many questions (she was surprised by this), nor did he await her assessment by a licensed psychiatrist before giving her this Rx. Nor did she ask him for this Rx." Another parent reported that she and her child were at the endocrinologist's office only to ask questions, and described, ". . .[he] didn't listen to a word we were saying. He was too eager to get us set up with a 'gender therapist' to get the legal form he needed to start hormones, all while making sure we set up our next appointment within 6 months to start the hormones. . ."

Theme: Parent views were discounted or ignored. Parents describe that the clinicians did not take their concerns seriously. One parent described, "I have to say I don't know, but it is hard to believe that they adequately examined the history of bullying and being ostracized for being different, and the autistic traits that would lend a person like my son to risk everything for identifying with a group. I know that in the few contacts I had with the providers, my concerns were discounted." And another said, "All of our emails went unanswered and were ignored. We are left out of everything because of our constant questioning of this being right for our daughter [because of her] trauma and current depression, anxiety and self-esteem problems."

Theme: Parent had concerns about the clinicians' competence, professionalism or experience. Parents expressed doubts about the clinicians regarding their experience, competence or professionalism. One parent said, "The clinic told me they explored these issues. I asked the risk manager at [redacted] if they'd considered a personality disorder. 'Oh, no,' she laughed. 'That's only with the older patients, not the teenagers.' I'm deeply suspicious of their competence." Another parent described, "What does concern me is that the people she talked to seemed to have no sense of professional duties, but only a mission to promote a specific social ideology."

Steps towards transition and current identification status

This section reports on the duration of AYA transgender-identification (time from the AYA's announcement of a transgender identity until the time the parent completed the survey) that covers, on average, 15.0 months (range 0.1–120 months) with a median of 11 months (Table 12). The steps taken towards transition during this timeframe are listed in Table 12. At the end of the timeframe, 83.2% of the AYAs were still transgender-identified, 5.5% were not still transgender-identified (desisted), 2.7% seemed to be backing away from transgender-identification, and 8.6% of the parents did not know if their child was still identifying as transgender. Descriptions of backing away or moving from transgender-identified to not transgender-identified include the following. One parent observed, "She identified as trans for six months . . . Now back at school, she is thinking maybe she's not trans." Another parent offered, "My daughter [identified] as trans from ages 13–16. She gradually desisted as she developed more insight into who she is." One parent described that after one year of identifying as transgender, "basically, she changed her mind once she stopped spending time with that particular group of friends." The duration of transgender-identification of the AYAs who were still transgender-identified at the time of survey was compared to the duration of those who were no longer transgender-identified and those who seemed to be backing away from a transgender-identification (combined) by t-test. The difference between these groups was statistically significant ($p = .025$), with a t-value of -2.25 showing that those who were no longer transgender-identified and backing away had a longer duration of identification (mean = 24.1 months) and those who were still transgender-identified had a shorter mean duration (mean = 14.4 months).

To explore the differences between the AYAs who had exposure to social influence (friend group, internet/social media, or both) and AYAs who did not have a clear exposure to social influence (neither and don't know), a series of chi-squared calculations were performed for

Table 12. Transition steps and disposition.

		n	%
Transition Steps*		256	
	Changed hairstyle	216	84.4
	Changed style of clothing	210	82.0
	Asks to be called a new name	188	73.4
	Asks for different pronouns	175	68.4
	Taken cross-sex hormones	29	11.3
	Legally changed name on government documents	19	7.4
	Taken anti-androgens	11	4.3
	Taken puberty blockers	7	2.7
	Had surgery	5	2.0
	None of the above	14	5.5
Disposition		256	
	Still transgender-identified	213	83.2
	Not transgender-identified any more (desisted)	14	5.5
	Seems to be backing away from transgender-identification	7	2.7
	Parent doesn't know if the child is still transgender-identified	22	8.6
	De-transitioned (also counted in desisted category)	3	1.2
Duration of transgender-identification overall	Median duration 11 months, Mean duration 15.0 months (range 0.1 months-120 months), median 11 months	225	
Duration of transgender-identification if still transgender-identified	Median duration 11 months, mean duration 14.4 months, ange (0.1 months-72 months)	204	
Duration of transgender-identification if no longer transgender-identified	Median duration 12 months, mean duration 24.2 months, range (.75 months to 120 months)	13	
Duration of transgender-identification if backing away	Median duration 12 months, mean duration 15 months, range (3 months-36 months)	8	

*may select more than one answer.

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selected variables. (See Table 13.) Statistically significant differences were revealed for AYAs with exposure to social influences having worse outcomes for mental well-being and parent-child relationships, and greater numbers exhibiting distrust, isolating and anti-social behaviors including: narrowed range of interests and hobbies, expressing that they only trusted information from transgender sources, trying to isolate themselves from their family, losing interest in activities that weren't predominantly with transgender or LGBTIA participants, and telling people or posting on social media that their parent is "transphobic," "abusive," or "toxic" because the parent doesn't agree with the child's assessment of being transgender. Although the differences in additional isolating and anti-social behaviors did not reach statistical significance, these behaviors trended towards higher rates in the AYAs who were exposed to social influence and may have not reached significant levels due to small numbers. No significant difference for age of AYA (at announcement or at time of survey completion) was detected between groups by a one-way ANOVA.

Discussion

This research describes parental reports about a sample of AYAs who would not have met diagnostic criteria for gender dysphoria during their childhood but developed signs of gender dysphoria during adolescence or young adulthood. The strongest support for considering that the gender dysphoria was new in adolescence or young adulthood is the parental answers for

Table 13. chi-squared comparisons for exposure to social influence (SI) vs not exposure to social influence (NSI).

		SI n (%)	NSI n (%)	p
Sex		222	34	.123
	Female	187 (84.2)	25 (73.5)	
	Male	35 (15.8)	9 (26.5)	
Indicators of childhood GD		221	33	**.004**
	0–2 indicators	**216 (97.7)**	**29 (87.9)**	
	3–4 indicators	**5 (2.3)**	**4 (12.1)**	
Currently have two or more GD indicators		214	34	.808
	Yes	179(83.6)	29 (85.3)	
	No	35(16.4)	5(14.7)	
No mental health or NDD diagnoses before onset of GD		222	34	**.036**
	Answered "None of the above"	**87(39.9)**	**7 (20.6)**	
Mental well-being since announcement		220	33	**.001**
	Worse	**114 (51.8)**	**6 (18.2)**	
	Better	**24 (10.9)**	**8 (24.2)**	
	Unchanged/Mixed	**82 (37.3)**	**19 (57.6)**	
Parent-child relationship since announcement		219	33	**.006**
	Worse	**134 (61.2)**	**11 (33.3)**	
	Better	**13 (5.9)**	**5 (15.2)**	
	Unchanged/Mixed	**72 (32.9)**	**17 (51.5)**	
Range of interests and hobbies		**220**	**34**	**<0.001**
	Broader range of interests and hobbies	**10 (4.5)**	**3 (8.8)**	
	Narrowed range of interest and hobbies	**139 (63.2)**	**9 (26.5)**	
	Unchanged range	**71 (32.3)**	**22 (64.7)**	
Distrust and Isolating Behaviors		222	34	
	Tried to isolate themselves from family	**114(51.4)**	**10 (29.4)**	**.017**
	Expressed that they ONLY trust information about GD and transgenderism that comes from transgender sources	**107 (48.2)**	**10 (29.4)**	**.041**
	Lost interest in activities where participants aren't predominantly transgender or LGBTIA	**76 (34.2)**	**5 (14.7)**	**.023**
	Stopped spending time with non-transgender friends	59 (26.6)	4 (11.8)	.062
	Expressed distrust of people who are not transgender	52 (23.4)	5 (14.7)	.255
	Told people or posted on social media that their parent is "transphobic," "abusive," or "toxic" because the parent doesn't agree with the child's assessment of being transgender	**102 (45.9)**	**5 (14.7)**	**<0.001**
	Defended the practice of lying to or withholding information from doctors/therapists to get hormones for transition more quickly	38 (17.1)	3 (8.8)	.219
	Brought up the issue of suicide in transgender teens as a reason parents should agree to treatment	55 (24.8)	4 (11.8)	.093
Did the AYA misrepresent their history to the doctor or relay it accurately?		68	8	.075
	Parent is reasonable sure or positive that their child misrepresented or omitted parts of their history	59 (86.8)	5 (62.5)	
	Parent is reasonable sure or positive that child relayed their history completely and accurately	9 (13.2)	3 (37.5)	

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DSM 5 criteria for childhood gender dysphoria. Not only would none of the sample have met threshold criteria, the vast majority had zero indicators. Although one might argue that three of the indicators could plausibly be missed by a parent (A1, A7, and A8 if the child had not

expressed these verbally), five of the indicators (A2-6) are readily observable behaviors and preferences that would be difficult for a parent to miss. Six indicators (including A1) are required for a threshold diagnosis. The nonexistent and low numbers of readily observable indicators reported in the majority of this sample does not support a scenario in which gender dysphoria was always present but was only recently disclosed to the parents.

Parents reported that before the onset of their gender dysphoria, many of the AYAs had been diagnosed with at least one mental health disorder or neurodevelopmental disability and many had experienced a traumatic or stressful event. Experiencing a sex or gender related trauma was not uncommon, nor was experiencing a family stressor (such as parental divorce, death of a parent, or a mental health disorder in a sibling or parent). Additionally, nearly half were described as having engaged in self-harm prior to the onset of their gender dysphoria. In other words, many of the AYAs and their families had been navigating multiple challenges and stressors before gender dysphoria and transgender-identification became part of their lives. This context could possibly contribute to friction between parent and child and these complex, overlapping difficulties as well as experiences of same-sex attraction may also be influential in the development of a transgender identification for some of these AYAs. Care should be taken not to overstate or understate the context of pre-existing diagnoses or trauma in this population as they were absent in approximately one third and present in approximately two thirds of the sample.

This research sample of AYAs also differs from the general population in that it is predominantly natal female, white, and has an over-representation of individuals who are academically gifted, non-heterosexual, and are offspring of parents with high educational attainment [59–61]. The sex ratio favoring natal females is consistent with recent changes in the population of individuals seeking care for gender dysphoria. Gender clinics have reported substantial increases in referrals for adolescents with a change in the sex ratio of patients moving from predominantly natal males seeking care for gender dysphoria to predominantly natal females [26–28, 62]. Although increased visibility of transgender individuals in the media and availability of information online, with a partial reduction of stigma might explain some of the rise in the numbers of adolescents presenting for care [27], it would not directly explain why the inversion of the sex ratio has occurred for adolescents but not adults or why there is a new phenomenon of natal females experiencing late-onset and adolescent-onset gender dysphoria. The unexpectedly high rate of academically gifted AYAs may be related to the high educational attainment of the parents and may be a reflection of parents who are online, able to complete online surveys and are able to question and challenge current narratives about gender dysphoria and transition. There may be other unknown variables that render academically gifted AYAs susceptible to adolescent-onset and late-onset gender dysphoria. The higher than expected rate of non-heterosexual orientations of the AYAs (prior to announcement of a transgender-identity) may suggest that the desire to be the opposite sex could stem from experiencing homophobia as a recent study showed that being the recipient of homophobic name calling from one's peers was associated with a change in gender identity for adolescents [63]. The potential relationship of experienced homophobia and the development of a rapid onset of gender dysphoria during adolescence or young adulthood as perceived by parents deserves further study.

This sample is distinctively different than what is described in previous research about gender dysphoria because of the distribution of cases occurring in friendship groups with multiple individuals identifying as transgender, the preponderance of adolescent (natal) females, the absence of childhood gender dysphoria, and the perceived suddenness of onset. In this study, parental reports of transgender identification duration in AYAs suggest that in some cases (~8% in this study) gender dysphoria and transgender-identification may be temporary, and

that longer observation periods may be needed to assess such changes. Further research is needed to verify these results. There have been anecdotal reports of adolescents who desisted approximately 9–36 months after showing signs of a rapid onset of gender dysphoria, but longitudinal research following AYAs with gender dysphoria would be necessary to study desistance trends. Although it is still unknown whether transition in gender dysphoric individuals decreases, increases, or fails to change the rates of attempted or completed suicides [64], this study documents AYAs using a suicide narrative as part of their arguments to parents and doctors towards receiving support and transition services. Despite the possibility that the AYAs are using a suicide narrative to manipulate others, it is critical that any suicide threat, ideation or concern is taken seriously and the individual should be evaluated immediately by a mental health professional.

The majority of parents were reasonably sure or certain that their child misrepresented or omitted key parts of their history to their therapists and physicians. In some cases, the misrepresentation of one's history may simply be a deliberate act by a person who is convinced that transition is the only way that they will feel better and who may have been coached that lying is the only way to get what they think they need. For others, the misrepresentation may not be a conscious act. The creation of an alternate version of one's childhood that conforms to a story of always knowing one was transgender and that is in sharp contrast to the childhood that was observed by third parties raises the question of whether there has been the creation of false childhood memories as part of, or outside of, the therapy process. Respondent accounts of clinicians who ignored or disregarded information (such as mental health symptoms and diagnoses, medical and trauma histories) that did not support the conclusion that the patient was transgender, suggests the possibility of motivated reasoning and confirmatory biases on the part of clinicians. In the 1990s, the beliefs and practices of many mental health professionals may have contributed to their patients' creation of false childhood memories consistent with a child sexual abuse narrative and research since then has shown that false childhood memories of mundane events can be implanted in laboratory settings [65–67]. It may be worthwhile to explore if, in today's culture, there might be beliefs and practices of some mental health professionals that are contributing to their patients' creation of false childhood memories consistent with an "always knew/always were transgender" narrative.

Emerging hypotheses

Hypothesis 1: Social influences can contribute to the development of gender dysphoria

It is unlikely that friends and the internet can make people transgender. However, it is plausible that the following can be initiated, magnified, spread, and maintained via the mechanisms of social and peer contagion: (1) the *belief* that non-specific symptoms (including the symptoms associated with trauma, symptoms of psychiatric problems, and symptoms that are part of normal puberty) should be perceived as gender dysphoria and their presence as proof of being transgender; 2) the *belief* that the only path to happiness is transition; and 3) the *belief* that anyone who disagrees with the self-assessment of being transgender or the plan for transition is transphobic, abusive, and should be cut out of one's life. The spread of these beliefs could allow vulnerable AYAs to misinterpret their emotions, incorrectly believe themselves to be transgender and in need of transition, and then inappropriately reject all information that is contrary to these beliefs. In other words, "gender dysphoria" may be used as a catch-all explanation for any kind of distress, psychological pain, and discomfort that an AYA is feeling while transition is being promoted as a cure-all solution.

One of the most compelling findings supporting a potential role of social and peer contagion in the development or expression of a rapid onset of gender dysphoria is the clusters of transgender-identification occurring within friendship groups. The expected prevalence of transgender young adult individuals is 0.7% [8]. Yet, according to the parental reports, more than a third of the friendship groups described in this study had 50% or more of the AYAs in the group becoming transgender-identified in a similar time frame. This suggests a localized increase to more than 70 times the expected prevalence rate. This is an observation that demands urgent further investigation. One might argue that high rates of transgender-identified individuals within friend groups may be secondary to the process of friend selection: choosing transgender-identified friends deliberately rather than the result of group dynamics and observed coping styles contributing to multiple individuals, in a similar timeframe, starting to interpret their feelings as consistent with being transgender. More research will be needed to finely delineate the timing of friend group formation and the timing and pattern of each new declaration of transgender-identification. Although friend selection may play a role in these high percentages of transgender-identifying members in friend groups, the described pattern of multiple friends (and often the majority of the friends in the friend group) *becoming* transgender-identified in a similar timeframe suggests that there may be more than just friend selection behind these elevated percentages.

There are many insights from our understanding of peer contagion in eating disorders and anorexia that may apply to the potential role(s) of peer contagion in the development of gender dysphoria. Just as friendship cliques can set the level of preoccupation with one's body, body image, weight, and techniques for weight loss [37–39], so too may friendship cliques set a level of preoccupation with one's body, body image, gender, and the techniques to transition. The descriptions of pro-anorexia subculture group dynamics where the thinnest anorexics are admired while the anorexics who try to recover from anorexia are ridiculed and maligned as outsiders [39–41] resemble the group dynamics in friend groups that validate those who identify as transgender and mock those who do not. And the pro-eating-disorder websites and online communities providing inspiration for weight loss and sharing tricks to help individuals deceive parents and doctors [42–44] may be analogous to the inspirational YouTube transition videos and the shared online advice about manipulating parents and doctors to obtain hormones.

Hypothesis 2: Parental conflict might provide alternative explanations for selected findings

Parents reported subjective declines in their AYAs' mental health and in parent-child relationships after the children disclosed a transgender identification. Additionally, per parent report, almost half of the AYAs withdrew from family, 28.5% refused to speak to a parent, and 6.8% tried to run away. It is possible that some of these findings might be secondary to parent-child conflict. Parent-child conflict could arise from disagreement over the child's self-assessment of being transgender. It is also possible that some parents might have had difficulty coping or could have been coping poorly or maladaptively with their child's disclosure. Other potential explanations for the above findings include worsening of AYAs' pre-existing (or onset of new) psychiatric conditions or the use of maladaptive coping mechanisms. To further evaluate these possibilities, future studies should incorporate information about family dynamics, parent-child interactions, parent coping, child coping, and psychiatric trajectories. This study did not collect data about the parents' baseline coping styles, how they were coping with their child's disclosure, and whether their coping seemed to be maladaptive or adaptive. Nor did it explore parents' mental well-being. Future studies should explore these issues as well.

Although most parents reported an absence of childhood indicators for gender dysphoria, it is possible that these indicators might have existed for some of the AYAs and that some parents either failed to notice or ignored these indicators when they occurred. Because the readily observable indicators could also have been observed by other people in the child's life, future studies should include input from parents, AYAs and from third party informants such as teachers, pediatricians, mental health professionals, babysitters, and other family members to verify the presence or absence of readily observable behaviors and preferences during childhood. Parental approaches to their child's gender dysphoria might contribute to specific outcomes. This study did not specifically explore parental approaches to gender dysphoria or parental views on medical or surgical interventions. Additional studies that explore whether parents support or don't support: gender exploration; gender nonconformity; non-heterosexual sexual identities; mental health evaluation and treatment; and exploration of potential underlying causes for dysphoria would be extremely valuable. It would also be worthwhile to explore whether parents favor affirming the child as a person or affirming the child's gender identity and whether parents hold liberal, cautious, or negative views about the use of medical and surgical interventions for gender dysphoria in AYAs.

Hypothesis 3: Maladaptive coping mechanisms may underlie the development of gender dysphoria for some AYAs

For some individuals, the drive to transition may represent an ego-syntonic but maladaptive coping mechanism to avoid feeling strong or negative emotions similar to how the drive to extreme weight loss can serve as an ego-syntonic but maladaptive coping mechanism in anorexia nervosa [68–69]. A maladaptive coping mechanism is a response to a stressor that might relieve the symptoms temporarily but does not address the cause of the problem and may cause additional negative outcomes. Examples of maladaptive coping mechanisms include the use of alcohol, drugs, or self-harm to distract oneself from experiencing painful emotions. One reason that the treatment of anorexia nervosa is so challenging is that the drive for extreme weight loss and weight loss activities can become a maladaptive coping mechanism that allows the patient to avoid feeling and dealing with strong emotions [69–70]. In this context, dieting is not felt as distressing to the patient, because it is considered by the patient to be the solution to her problems, and not part of the problems. In other words, the dieting and weight loss activities are ego-syntonic to the patient. However, distress is felt by the patient when external actors (doctors, parents, hospital staff) try to interfere with her weight loss activities thus curtailing her maladaptive coping mechanism.

Findings that may support a maladaptive coping mechanism hypothesis include that the most likely description of AYA ability to use negative emotions productively was poor/extremely poor and the majority of AYAs were described as "overwhelmed by strong emotions and tries to/goes to great lengths to avoid experiencing them." Although these are not validated questions, the findings suggest, at least, that there is a history of difficulty dealing with emotions. The high frequency of parents reporting AYA expectations that transition would solve their problems coupled with the sizable minority who reported AYA unwillingness to work on basic mental health issues before seeking treatment support the concept that the drive to transition might be used to avoid dealing with mental health issues and aversive emotions. Additional support for this hypothesis is that the sample of AYAs described in this study are predominantly female, were described by parents as beginning to express symptoms during adolescence and contained an overrepresentation of academically gifted students which bears a strong resemblance to populations of individuals diagnosed with anorexia nervosa [71–75]. The risk factors, mechanisms and meanings of anorexia nervosa [69–70, 76] may ultimately

prove to be a valuable template to understand the risk factors, mechanisms, and meanings for some cases of gender dysphoria.

Transition as a drive to escape one's gender/sex, emotions, or difficult realities might also be considered when the drive to transition arises after a sex or gender-related trauma or within the context of significant psychiatric symptoms and decline in ability to function. Although trauma and psychiatric disorders are not specific for the development of gender dysphoria, these experiences may leave a person in psychological pain and in search of a coping mechanism. The first coping mechanism that a vulnerable person adopts may be the result of their environment and which narratives for pain and coping are most prevalent in that environment—in some settings a gender dysphoria/drive to transition may be the dominant paradigm, in some settings a body dysphoria/drive for extreme weight loss is dominant, and in another the use of alcohol and drugs to cope with pain may be dominant. Because maladaptive coping mechanisms do not address the root cause of distress and may cause their own negative consequences, an outcome commonly reported for this sample, AYAs experiencing a decline in their mental well-being after transgender-identification, is consistent with this hypothesis. There was a subset of AYAs for whom parents reported improvement in their mental well-being as they desisted from their transgender-identification which would not be inconsistent with moving from a maladaptive coping mechanism to an adaptive coping mechanism.

If the above hypotheses are correct, rapid onset of gender dysphoria that is socially mediated and/or used as a maladaptive coping mechanism may be harmful to AYAs in the following ways: (1) non-treatment or delayed treatment for trauma and mental health problems that might be the root of (or at least an inherent part of) the AYAs' issues; (2) alienation of the AYAs from their parents and other crucial social support systems; (3) isolation from mainstream, non-transgender society, which may curtail educational and vocational potential; and (4) the assumption of the medical and surgical risks of transition without benefit. In addition to these indirect harms, there is also the possibility that this type of gender dysphoria, with the subsequent drive to transition, may represent a form of intentional self-harm. Promoting the affirmation of a declared gender and recommending transition (social, medical, surgical) without evaluation may add to the harm for these individuals as it can reinforce the maladaptive coping mechanism, prolong the length of time before the AYA accepts treatment for trauma or mental health issues, and interfere with the development of healthy, adaptive coping mechanisms. It is especially critical to differentiate individuals who would benefit from transition from those who would be harmed by transition before proceeding with treatment.

Reflections

Clinicians need to be aware of the myriad of barriers that may stand in the way of making accurate diagnoses when an AYA presents with a desire to transition including: the developmental stage of adolescence; the presence of subcultures coaching AYAs to mislead their doctors; and the exclusion of parents from the evaluation. In this study, 22.3% of AYAs were reported as having been exposed to online advice about what to say to doctors to get hormones, and 17.5% to the advice that it is acceptable to lie to physicians; and the vast majority of parents were reasonably sure or positive that their child misrepresented their history to their doctor or therapist. Furthermore, although parents may be knowledgeable informants on matters of their own child's developmental, medical, social, behavioral, and mental health history- and quite possibly *because* they are knowledgeable- they are often excluded from the clinical discussion by the AYAs, themselves. An AYA telling their clinician that their parents are transphobic and abusive may indeed mean that the parents are transphobic and abusive. However, the findings of this research indicate that it is also possible that the AYA calls the parent

transphobic and abusive because the parent disagrees with the child's self-diagnosis, has expressed concern for the child's future, or has requested that the child be evaluated for mental health issues before proceeding with treatment.

The findings of this study suggest that clinicians need to be cautious before relying solely on self-report when AYAs seek social, medical or surgical transition. Adolescents and young adults are not trained medical professionals. When AYAs diagnose their own symptoms based on what they read on the internet and hear from their friends, it is quite possible for them to reach incorrect conclusions. It is the duty of the clinician, when seeing a new AYA patient seeking transition, to perform their own evaluation and differential diagnosis to determine if the patient is correct or incorrect in their self-assessment of their symptoms and their conviction that they would benefit from transition. This is not to say that the convictions of the patient should be dismissed or ignored, some may ultimately benefit from transition. However, careful clinical exploration should not be neglected, either. The patient's history being significantly different than their parents' account of the child's history should serve as a red flag that a more thorough evaluation is needed and that as much as possible about the patient's history should be verified by other sources. The findings that the majority of clinicians described in this study did not explore trauma or mental health disorders as possible causes of gender dysphoria or request medical records in patients with atypical presentations of gender dysphoria is alarming. The reported behavior of clinicians refusing to communicate with their patients' parents, primary care physicians, and psychiatrists betrays a resistance to triangulation of evidence which puts AYAs at considerable risk.

It is possible that some teens and young adults may have requested that their discussions with the clinicians addressing gender issues be kept confidential from their parents, as is their right (except for information that would put themselves or others at harm). However, maintaining confidentiality of the patient does not prevent the clinician from listening to the medical and social history of the patient provided by the parent. Nor does it prevent a clinician from accepting information provided by the patient's primary care physicians and psychiatrists. Because adolescents may not be reliable historians and may have limited awareness and insight about their own emotions and behaviors, the inclusion of information from multiple informants is often recommended when working with or evaluating minors. One would expect that if a patient refuses the inclusion of information from parents and physicians (prior and current), that the clinician would explore this with the patient and encourage them to reconsider. At the very least, if a patient asks that all information from parents and medical sources be disregarded, it should raise the suspicion that what the patient is presenting may be less than forthcoming and the clinician should proceed with caution.

The argument to surface from this study is not that the insider perspectives of AYAs presenting with signs of a rapid onset of gender dysphoria should be set aside by clinicians, but that the insights of parents are a pre-requisite for robust triangulation of evidence and fully informed diagnosis. All parents know their growing children are not always right, particularly in the almost universally tumultuous period of adolescence. Most parents have the awareness and humility to know that even as adults they are not always right themselves. When an AYA presents with signs of a rapid onset of gender dysphoria it is incumbent upon all professionals to fully respect the young person's insider perspective but also, in the interests of safe diagnosis and avoidance of clinical harm, to have the awareness and humility themselves to engage with parental perspectives and triangulate evidence in the interest of validity and reliability.

The strengths of this study include that it is the first empirical description of a specific phenomenon that has been observed by parents and clinicians [14] and that it explores parent observations of the psychosocial context of youth who have recently identified as transgender with a focus on vulnerabilities, co-morbidities, peer group interactions, and social media use.

Additionally, the qualitative analysis of responses about peer group dynamics provides a rich illustration of AYA intra-group and inter-group behaviors as observed and reported by parents. This research also provides a glimpse into parent perceptions of clinician interactions in the evaluation and treatment of AYAs with an adolescent-onset (or young adult-onset) of gender dysphoria symptoms.

The limitations of this study include that it is a descriptive study and thus has the known limitations inherent in all descriptive studies. This is not a prevalence study and does not attempt to evaluate the prevalence of gender dysphoria in adolescents and young adults who had not exhibited childhood symptoms. Likewise, this study's findings did not demonstrate the degree to which the onset of gender dysphoria symptoms may be socially mediated or associated with a maladaptive coping mechanism, although these hypotheses were discussed here. Gathering more data on the topics introduced is a key recommendation for further study. It is not uncommon for first, descriptive studies, especially when studying a population or phenomenon where the prevalence is unknown, to use targeted recruiting. To maximize the possibility of finding cases meeting eligibility criteria, recruitment is directed towards communities that are likely to have eligible participants. For example, in the first descriptive study about children who had been socially transitioned, the authors recruited potential subjects from gender expansive camps and gender conferences where parents who supported social transition for young children might be present and the authors did not seek out communities where parents might be less inclined to find social transition for young children appropriate [77]. In the same way, for the current study, recruitment was targeted primarily to sites where parents had described the phenomenon of a rapid onset of gender dysphoria because those might be communities where such cases could be found. The generalizability of the study must be carefully delineated based on the recruitment methods, and, like all first descriptive studies, additional studies will be needed to replicate the findings.

Three of the sites that posted recruitment information expressed cautious or negative views about medical and surgical interventions for gender dysphoric adolescents and young adults and cautious or negative views about categorizing gender dysphoric youth as transgender. One of the sites that posted recruitment information is perceived to be pro-gender-affirming. Hence, the populations viewing these websites might hold different views or beliefs from each other. And both populations may differ from a broader general population in their attitudes about transgender-identified individuals. This study did not explore specific participant views about medical and surgical interventions for gender dysphoric youth or whether participants support or don't support: exploration of gender identity, exploration of potential underlying causes for gender dysphoria, affirmation of children as valued individuals or affirmation of children's gender identity. Future studies should explore all these issues. This study cannot speak to those details about the participants.

Respondents were asked, "Do you believe that transgender people deserve the same rights and protections as others in your country?" which is a question that was adapted from a question used for a US national poll [78]. Although this question cannot elicit specific details about a persons' beliefs about medical interventions, beliefs about transgender identification, or their beliefs about their own child, it can be used to assess if the participants in this study are similar in their basic beliefs about the rights of transgender people to the participants in the US national poll. The majority (88.2%) of the study participants gave affirmative answers to the question which is consistent with the 89% affirmative response reported in a US national poll [78]. All self-reported results have the potential limitation of social desirability bias. However, comparing this self-report sample to the national self-report sample [78], the results show similar rates of support. Therefore, there is no evidence that the study sample is appreciably different in their support of the rights of transgender people than the general American population.

It is also important to note that recruitment was not limited to the websites where the information about the study was first posted. Snowball sampling was also used so that any person viewing the recruitment information was encouraged to share the information with any person or community where they thought there could be potentially eligible participants, thus substantially widening the reach of potential respondents. In follow up studies on this topic, an even wider variety of recruitment sources should be attempted.

Another limitation of this study is that it included only parental perspective. Ideally, data would be obtained from both the parent and the child and the absence of either perspective paints an incomplete account of events. Input from the youth would have yielded additional information. Further research that includes data collection from both parent and child is required to fully understand this condition. However, because this research has been produced in a climate where the input from parents is often neglected in the evaluation and treatment of gender dysphoric AYAs, this research supplies a valuable, previously missing piece to the jigsaw puzzle. If Hypothesis 3 is correct that for some AYAs gender dysphoria represents an egosyntonic maladaptive coping mechanism, data from parents are especially important because affected AYAs may be so committed to the maladaptive coping mechanism that their ability to assess their own situation may be impaired. Furthermore, parents uniquely can provide details of their child's early development and the presence or absence of readily observable childhood indicators of gender dysphoria are especially relevant to the diagnosis. There are, however, obvious limitations to relying solely on parent report. It is possible that some of the participating parents may not have noticed symptoms of gender dysphoria before their AYA's disclosure of a transgender identity; could have been experiencing shock, grief, or difficulty coping from the disclosure; or even could have chosen to deny or obscure knowledge of long term gender dysphoria. Readers should hold this possibility in mind. Overall, the 200 plus responses appear to have been prepared carefully and were rich in detail, suggesting they were written in good faith and that parents were attentive observers of their children's lives. Although this research adds the necessary component of parent observation to our understanding of gender dysphoric adolescents and young adults, future study in this area should include both parent and child input.

This research does not imply that no AYAs who become transgender-identified during their adolescent or young adult years had earlier symptoms nor does it imply that no AYAs would ultimately benefit from transition. Rather, the findings suggest that *not all* AYAs presenting at these vulnerable ages are correct in their self-assessment of the cause of their symptoms and *some* AYAs may be employing a drive to transition as a maladaptive coping mechanism. It may be difficult to distinguish if an AYA's declining mental health is occurring due to the use of a maladaptive coping mechanism, due to the worsening of a pre-existing (or onset of a new) psychiatric condition, or due to conflict with parents. Clinicians should carefully explore these options and try to clarify areas of disagreement with confirmation from outside sources such as medical records, psychiatrists, psychologists, primary care physicians, and other third party informants where possible. Further study of maladaptive coping mechanisms, psychiatric conditions and family dynamics in the context of gender dysphoria and mental health would be an especially valuable contribution to better understand how to treat youth with gender dysphoria.

More research is needed to determine the incidence, prevalence, persistence and desistence rates, and the duration of gender dysphoria for adolescent-onset gender dysphoria and to examine whether rapid-onset gender dysphoria is a distinct and/or clinically valid subcategory of gender dysphoria. Adolescent-onset gender dysphoria is sufficiently different from early-onset of gender dysphoria that persists or worsens at puberty and therefore, the research results from early-onset gender dysphoria should not be considered generalizable to

adolescent-onset gender dysphoria. It is currently unknown whether the gender dysphorias of adolescent-onset gender dysphoria and of late-onset gender dysphoria occurring in young adults are transient, temporary or likely to be long-term. Without the knowledge of whether the gender dysphoria is likely to be temporary, extreme caution should be applied before considering the use of treatments that have permanent effects such as cross-sex hormones and surgery. Research needs to be done to determine if affirming a newly declared gender identity, social transition, puberty suppression and cross-sex hormones can cause an iatrogenic persistence of gender dysphoria in individuals who would have had their gender dysphoria resolve on its own and whether these interventions prolong the duration of time that an individual feels gender dysphoric before desisting. There is also a need to discover how to diagnose these conditions, how to treat the AYAs affected, and how best to support AYAs and their families. Additionally, analyses of online content for pro-transition sites and social media should be conducted in the same way that content analysis has been performed for pro-eating disorder websites and social media content [44]. Finally, further exploration is needed for potential contributors to recent demographic changes including the substantial increase in the number of adolescent natal females with gender dysphoria and the new phenomenon of natal females experiencing late-onset or adolescent-onset gender dysphoria.

Conclusion

Collecting data from parents in this descriptive exploratory study has provided valuable, detailed information that allows for the generation of hypotheses about potential factors contributing to the onset and expression of gender dysphoria among AYAs. Emerging hypotheses include the possibility of a potential new subcategory of gender dysphoria (referred to as rapid-onset gender dysphoria) that has not yet been clinically validated and the possibility of social influences and maladaptive coping mechanisms contributing to the development of gender dysphoria. Parent-child conflict may also contribute to the course of the dysphoria. More research that includes data collection from AYAs, parents, clinicians and third party informants is needed to further explore the roles of social influence, maladaptive coping mechanisms, parental approaches, and family dynamics in the development and duration of gender dysphoria in adolescents and young adults.

Supporting information

S1 Appendix. Survey instrument.
(PDF)

S2 Appendix. COREQ checklist.
(PDF)

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Author Contributions

Conceptualization: Lisa Littman.

Data curation: Lisa Littman.

Formal analysis: Lisa Littman.

Investigation: Lisa Littman.

Methodology: Lisa Littman.

Project administration: Lisa Littman.

Writing – original draft: Lisa Littman.

Writing – review & editing: Lisa Littman.

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ORIGINAL PAPER

Individuals Treated for Gender Dysphoria with Medical and/or Surgical Transition Who Subsequently Detransitioned: A Survey of 100 Detransitioners

Lisa Littman[1]

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Abstract

The study's purpose was to describe a population of individuals who experienced gender dysphoria, chose to undergo medical and/or surgical transition and then detransitioned by discontinuing medications, having surgery to reverse the effects of transition, or both. Recruitment information with a link to an anonymous survey was shared on social media, professional listservs, and via snowball sampling. Sixty-nine percent of the 100 participants were natal female and 31.0% were natal male. Reasons for detransitioning were varied and included: experiencing discrimination (23.0%); becoming more comfortable identifying as their natal sex (60.0%); having concerns about potential medical complications from transitioning (49.0%); and coming to the view that their gender dysphoria was caused by something specific such as trauma, abuse, or a mental health condition (38.0%). Homophobia or difficulty accepting themselves as lesbian, gay, or bisexual was expressed by 23.0% as a reason for transition and subsequent detransition. The majority (55.0%) felt that they did not receive an adequate evaluation from a doctor or mental health professional before starting transition and only 24.0% of respondents informed their clinicians that they had detransitioned. There are many different reasons and experiences leading to detransition. More research is needed to understand this population, determine the prevalence of detransition as an outcome of transition, meet the medical and psychological needs of this population, and better inform the process of evaluation and counseling prior to transition.

Keywords Gender dysphoria · Detransition · Transgender

Introduction

Detransition is the act of stopping or reversing a gender transition. The visibility of individuals who have detransitioned is new and may be rapidly growing. As recently as 2014, it was challenging for an individual who detransitioned to find another person who similarly detransitioned (Callahan, 2018). Between 2015 and 2017, a handful of blogs written by individual detransitioners started to appear online, private support groups for detransitioners formed, and interviews with detransitioners began to appear in news articles, magazines, and blogs (Anonymous, 2017; 4thwavenow, 2016; Herzog, 2017; McCann, 2017). Although few YouTube videos about detransition existed prior to 2016, multiple detransitioners started to post videos documenting their experiences in 2016 and the numbers of these videos continues to increase.[1] In late 2017, the subreddit r/detrans (r/detrans, 2020) was revitalized and in four years has grown from 100 members to more than 21,000 members. A member poll of r/detrans conducted in 2019 estimated that approximately one-third of the members responding to the survey were desisters or detransitioners (r/detrans, 2019). The Pique Resilience Project, a group of four detransitioned or desisted young women, was founded in 2018 as a way to share the experiences of detransitioners with the public (Pique Resilience Project, 2019). In late 2019, the Detransition Advocacy Network, a nonprofit organization to "improve the well-being of detransitioned people everywhere" was launched (The

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✉ Lisa Littman
Lisa.Littman@gmail.com

[1] The Institute for Comprehensive Gender Dysphoria Research, 489 Main Street, Warren, RI 02885, USA

[1] A search of the word "detransition" in YouTube can be filtered by date of upload. https://www.youtube.com/results?search_query=%22detransition%22&sp=CAI%253D22.

Detransition Advocacy Network, 2020) and the first formal, in-person conference for detransitioned people was held (Bridge, 2020). In the face of this massive change, clinicians have called for more research into the experiences of detransitioners (Butler & Hutchinson, 2020; Entwistle, 2021; Marchiano, 2020).

Although there were rare published reports about detransitioners prior to 2016, most of the published literature about detransition is recent (Callahan, 2018; D'Angelo, 2018; Djordjevic et al., 2016; Kuiper & Cohen-Kettenis, 1998; Levine, 2018; Marchiano, 2017; Pazos Guerra et al., 2020; Stella, 2016; Turban & Keuroghlian, 2018; Turban et al., 2021; Vandenbussche, 2021). The prevailing cultural narratives about detransition are that most individuals who detransition will retransition and that the reasons for detransition are discrimination, pressures from others, and nonbinary identification (Turban et al., 2021). However, case reports are shedding light on a broader and more complex range of experiences that include trauma, worsened mental health with transition, re-identification with natal sex, and difficulty separating sexual orientation from gender identity (D'Angelo, 2018; Levine, 2018; Pazos Guerra et al., 2020).[2] Detransitioners and desisters, in their own words, have provided additional depth to the discussion, describing that:

(1) Trauma (including sexual trauma) and mental health conditions contributed to their transgender identification and transition (Callahan, 2018; Herzog, 2017; twitter.com/ftmdetransed & twitter.com/radfemjourney, 2019)
(2) Their dysphoria and transition were due to homophobia and difficulty accepting themselves as homosexual (Bridge, 2020; Callahan, 2018; upperhandMARS, 2020)
(3) Peers, social media, and online communities were influential in the development of transgender identification and desire to transition (Pique Resilience Project, 2019; Tracey, 2020; upperhandMARS, 2020)
(4) Their dysphoria was rooted in misogyny (Herzog, 2017)

Two recently published convenience sample reports provide additional context about the topic of detransition. First, Turban et al. (2021) analyzed data from the United States Trans Survey (USTS) (James et al., 2016). The USTS contains data from 27,715 transgender and gender diverse adults from the U.S. who were recruited through lesbian, gay, bisexual, transgender, queer (LGBTQ), and allied organization outreach. The USTS included the question, "Have you ever detransitioned? In other words, have you ever gone back to living as your sex assigned at birth, at least for a while?" with the multiple choice options of "yes," "no," and "I have never transitioned." For the 2,242 participants who answered "yes," Turban et al. analyzed the responses to the multiple choice question, "Why did you detransition? In other words, why did you go back to living as your sex assigned at birth? (Mark all that apply)." Although most of the offered answer options were about external pressures to detransition (pressure from spouse or partner, pressure from family, pressure from friends, pressure from employer, discrimination, etc.), participants could write in additional reasons that were not listed. Turban et al.'s sample included more natal males (55.1%) than natal females (44.9%). Roughly half (50.2%) had taken cross-sex hormones and 16.5% had obtained surgery. The findings revealed that most (82.5%) of the sample expressed at least one external factor for detransitioning and 15.9% expressed at least one internal factor (factors originating from self).

The second study by Vandenbussche (2021) recruited detransitioners from online communities of detransitioners and analyzed data for the participants who answered affirmatively to the question, "Did you transition medically and/or socially and then stopped?" The sample of 237 participants was predominantly natal female (92%), and from the U.S. (51%) and Europe (32%). Most (65%) had transitioned both medically and socially. Participants selected from multiple choice options to indicate why they detransitioned with options covering a range of experiences. Respondents also had the option to write in additional reasons. Frequently endorsed reasons for detransition included realizing that their gender dysphoria was related to other issues (70%); health concerns (62%); observing that transition did not help their dysphoria (50%); and that they found alternatives to deal with their dysphoria (45%). In contrast to Turban et al. (2021), external factors such as lack of support, financial concerns, and discrimination were less common (13%, 12%, and 10%, respectively). Many in the sample described that when they detransitioned they lost support or were ostracized from lesbian, gay, bisexual, and transgender (LGBT) communities, suggesting that many of the participants in Vandenbussche (2021) would not have been reached by the recruitment efforts of the USTS (James et al., 2016).

The objective of the current study was to describe a population of individuals who experienced gender dysphoria, chose to undergo medical and/or surgical transition and then detransitioned by discontinuing medications, having surgery to reverse the effects of transition, or both. In contrast to Turban et al. (2021) and Vandenbussche (2021), this study focused only on

[2] The debate about the terminologies used to describe an individual's sex (including "assigned sex at birth," "biological sex," "natal sex," "birth sex," "sex," etc.) is far from settled. Although some professionals have argued for the use of "assigned sex at birth," others argue that this terminology is misleading and not consistent with the events that occur at birth and prior to birth (Bouman et al., 2017; Byng et al., 2018; Dahlen, 2020; Griffin et al., 2020). Supporting the unsettled nature of the discussion, I received conflicting comments from the reviewers of this manuscript about my selection of natal sex terms–one reviewer asked that I justify my preference for natal sex over the other terminologies; another reviewer expressed support for my use of natal sex. I prefer to use "natal sex" and "birth sex" because they are accurate and objective. Further, I propose that "natal sex" and "birth sex" might be seen as reasonable, polite compromise terms between "biological sex" and "assigned sex at birth."

individuals who transitioned and detransitioned medically, surgically, or both. For the purpose of this study, medical transition refers to the use of puberty blockers, cross-sex hormones, or anti-androgens and surgical transition refers to any of a variety of surgical procedures (common surgical procedures include mastectomy, genital surgery, and breast augmentation). This study does not describe the population of individuals who undergo medical or surgical transition without issue nor is it designed to assess the prevalence of detransition as an outcome of transition. Instead, the goal was to identify detransition reasons and narratives in order to inform clinical care and future research.

Method

Participants and Procedure

During the recruitment period, 101 individuals who met the study criteria completed online surveys. Inclusion criteria were (1) completion of a survey via Survey Monkey; (2) answering that they had taken or had one or more of the following for the purpose of gender transition: cross-sex hormones, anti-androgens, puberty blockers, breast surgery, genital surgery, other surgery; and (3) answering that they had done any of the following for the purpose of detransitioning: stopped taking cross-sex hormones, stopped taking anti-androgens, stopped taking puberty blockers, had any surgery to reverse transition. One survey was excluded for nonsense answers leaving 100 surveys for analysis. The sample included more natal females (69.0%) than natal males (31.0%) with respondents who were predominantly White (90.0%), non-Hispanic (98.0%), resided in the U.S. (66.0%); had no religious affiliation (63.0%), and support the rights of gay and lesbian couples to marry legally (92.9%) (see Table 1). At the time of survey completion, the mean age of respondents was 29.2 years (SD = 9.1) though natal females were significantly younger ($M = 25.8$; SD = 5.0) than natal males ($M = 36.7$; SD = 11.4), $t(98) = -6.56$, $p < .001$. Prior to transitioning, natal females were more likely to report an exclusively homosexual sexual orientation and natal males were more likely to report an exclusively heterosexual sexual orientation.

A 115-question survey instrument with multiple choice, Likert-type, and open-ended questions was created by the author and two individuals who had personally detransitioned. The author had met both detransitioners by way of introductions from colleagues. The author and both individuals who had detransitioned created questions for the survey, provided feedback, and revised the survey questions collaboratively with a focus on content, clarity, and relevance to a variety of transition and detransition experiences. The survey instrument included two questions that were adapted from an online survey of female detransitioners (Stella, 2016). Once completed, the survey was uploaded onto Survey Monkey (SurveyMonkey, Palo Alto, CA) via an account that was HIPAA-enabled.

Recruitment information with a link to the survey was posted on blogs that covered detransition topics and shared in a private online detransition forum, in a closed detransition Facebook group, and on Tumblr, Twitter, and Reddit. Recruitment information was also shared on the professional listservs for the World Professional Association for Transgender Health, the American Psychological Association Section 44, and the SEXNET listserv (which is a listserv of sex researchers and clinicians) and the professionals on the listservs were asked to share recruitment information with anyone they knew who might be eligible. Efforts were made to reach out to communities with varied views about the use of medical and surgical transition and recruitment information stated that participation was sought from individuals regardless of whether their transition experiences were positive, negative or neutral. Potential participants were invited to share recruitment information with any potentially eligible person or community with potentially eligible people. The survey was active from December 15, 2016 to April 30, 2017 (4.5 months). The median time to complete a survey was 49 min; 50% of the surveys were completed between 32 and 71 min. There were no incentives offered for participating. Data were collected anonymously, without IP addresses, and stored securely with Survey Monkey.

Participation in this study was voluntary. Electronic consent was obtained from all participants in the following manner. The first page of the online survey informed respondents about the research purpose, potential risks and benefits, that participation was voluntary, and provided contact information for the researcher. Survey questions were only displayed if the participant clicked "agree" which indicated that they read the information, voluntarily agreed to participate and were at least 18 years of age.

Measures

Demographic and Baseline Characteristics

Information was collected about participant age, natal sex, race/ethnicity, country of residence, educational attainment, socioeconomic status, religion, attitudes about legal marriage for gay and lesbian couples, and where they first heard about the study. The term sexual orientation in this article is intended to refer to the natal sex of the participant and the natal sex of the individuals with whom they are sexually attracted. Participants were asked to select one or more labels for how they identified their sexual orientation prior to transition with options inclusive of participant sex (e.g., asexual female, bisexual female, heterosexual female, etc.). These responses were coded to be consistent with participant natal sex and were categorized into homosexual, heterosexual, bisexual, pansexual, asexual, and multiple. The multiple category included respondents who

Table 1 Demographic and baseline characteristics

	Natal female *N* (%) *N* = 69	Natal male *N* (%) *N* = 31
*Race/ethnicity**		
White	62 (89.9%)	28 (90.3%)
Multiracial	6 (8.7%)	3 (9.7%)
Other	4 (5.8%)	0 (0%)
Asian	1 (1.4%)	1 (3.2%)
Hispanic	1 (1.4%)	1 (3.2%)
Black	0 (0%)	0 (0%)
Country of residence		
USA	46 (66.7%)	20 (64.5%)
UK	8 (11.6%)	1 (3.2%)
Canada	5 (7.2%)	4 (12.9%)
Australia	2 (2.9%)	2 (6.5%)
Other	8 (11.6%)	4 (12.9%)
Education		
Bachelor's or graduate degree	29 (42.0%)	18 (58.1%)
Associates degree	3 (4.3%)	1 (3.2%)
Some college but no degree	28 (40.6%)	9 (29.0%)
High school graduate or GED	8 (11.6%)	2 (6.5%)
< High school	1 (1.4%)	0 (0%)
Other	0 (0%)	1 (3.2%)
Socioeconomic status compared to others in country of residence		
Above average (somewhat or very much)	19 (27.5%)	12 (38.7%)
About average	20 (29.0%)	7 (22.6%)
Below average (somewhat or very much)	27 (39.1%)	12 (38.7%)
Prefer not to say	3 (4.3%)	0 (0%)
Categorized sexual orientation (by natal sex) prior to transition[a]		
Homosexual	18 (26.1%)	2 (6.5%)
Heterosexual	6 (8.7%)	12 (38.7%)
Bisexual	15 (21.7%)	8 (25.8%)
Pansexual	4 (5.8%)	1 (3.2%)
Multiple	20 (29.0%)	5 (16.1%)
Asexual	6 (8.7%)	3 (9.7%)
Religious affiliation		
No religious affiliation	41 (59.4%)	22 (73.3%)
Liberal Christian	5 (7.2%)	3 (10.0%)
Liberal Jewish	5 (7.2%)	0 (0%)
Conservative Christian	1 (1.4%)	2 (6.7%)
Liberal Muslim	1 (1.4%)	0 (0%)
Conservative Jewish	0 (0%)	0 (0%)
Conservative Muslim	0 (0%)	0 (0%)
Other	16 (23.2%)	3 (10.0%)
Legal marriage for gay and lesbian couples		
Favor	65 (97.0%)	26 (83.9%)
Oppose	1 (1.5%)	5 (16.1%)
Don't know	1 (1.5%)	0 (0%)
Source where participant first heard about study		
Detransition blogs	26 (37.7%)	15 (48.4%)
Other social media	37 (53.6%)	11 (35.5%)
A person they know	3 (4.3%)	3 (9.7%)
Other	3 (4.3%)	2 (6.5%)

*May select more than one answer

[a]Natal females were more likely to express an exclusively homosexual sexual orientation prior to transition ($\chi^2 = 5.15$. The *p*-value is .023). Natal males were more likely to express an exclusively heterosexual sexual

Table 1 (continued)

orientation prior to transition ($\chi^2 = 13.05$. The p value is $< .001$). Natal sex differences were not significant for individuals expressing pre-transition sexual orientations of bisexual, pansexual, multiple, and asexual. For bisexual sexual orientation, $\chi^2 = 0.20$. For pansexual sexual orientation, $\chi^2 = 0.29$. For multiple sexual orientations reported, $\chi^2 = 1.88$. For asexual sexual orientation, $\chi^2 = 0.02$

selected more than one response where responses indicated more than one pattern of sexual attraction (e.g., lesbian female and heterosexual female). Other questions about baseline characteristics included questions about diagnosed psychiatric disorders and neurodevelopmental disabilities, trauma, and non-suicidal self-injury (NSSI) before the onset of gender dysphoria.

Gender Dysphoria Onset and Typologies

Participants were asked how old they were when they first experienced gender dysphoria and whether this was during childhood, at the onset of puberty, during puberty, or later. Respondents were categorized as having early-onset gender dysphoria if they indicated that their gender dysphoria began "during childhood" and late-onset gender dysphoria if their gender dysphoria began "at the onset of puberty" or later. To evaluate typologies, participants were characterized by Blanchard's (1985, 1989) typology as homosexual (if the sexual orientations listed prior to transition were exclusively homosexual) or non-homosexual which includes heterosexual, asexual, bisexual, pansexual, and multiple responses.

Transition

Participants were asked for their age and the year that they first sought care to transition, sources that encouraged them to believe that transition would be helpful to them, and whether they felt pressured to transition. The friendship group dynamics that were identified in previous work were assessed by asking respondents whether their friendship group mocked people who were not transgender, whether people in their pre-existing friend group transitioned before the participant decided to transition, and how participant popularity changed after announcing that they would transition (Littman, 2018). Questions were asked about participant experiences with clinicians, the social, medical, and surgical steps they took to transition, and the duration of time spent taking each medication.

Detransition

Participants were asked for their age and the year that they decided to detransition, how long they were transitioned before deciding to detransition, their reasons for wanting to detransition, what sources encouraged them to believe that detransition would be helpful to them, and whether they felt pressured to detransition. Participants were also asked which social, medical, and surgical steps they took to detransition and whether they contacted the doctor or clinic that they used for their transition to tell them that they detransitioned.

Transition and Detransition Narratives

In this article, "narratives" denote participant interpretations of their experiences and rationales surrounding their decisions to transition and detransition. To associate each participant survey with a set of relevant narratives, the data were reviewed with horizontal (beginning to end) passes and vertical passes for selected questions (these questions are listed in the supplemental materials). Surveys were coded as belonging to zero or more of the following narrative categories: discrimination, nonbinary, retransition, trauma and mental health, internalized homophobia, social influence, and misogyny. Each narrative and the responses that were associated with them are detailed below. Example quotes were selected with care taken to avoid quoting a participant more than once per narrative. Narratives are ordered and reported with the more commonly accepted narratives first and the newer narratives next.

The *discrimination* narrative was defined as when someone detransitioned due to experiencing discrimination or external social pressures. The *nonbinary* narrative consisted of answering that their current identification was "nonbinary/genderqueer" or providing open-text responses that described aspects of discovering or maintaining a nonbinary identification. Although there were no questions in the survey specifically asking about retransition, the *retransition* narrative was identified if participants expressed that they had retransitioned or resumed transition in any of the open-text responses in the survey. The *gender dysphoria was caused by trauma or a mental health condition* narrative was identified by selection for the answers, "what I thought were feelings of being transgender were actually the result of trauma," "what I thought were feelings of being transgender were actually the result of a mental health condition," "I discovered that my gender dysphoria was caused by something specific (ex. trauma, abuse, mental health condition)" or open-text responses consistent with these reasons. The *internalized homophobia/difficulty accepting oneself as a lesbian female, gay male, or bisexual person* narrative consisted of descriptions that the respondents' discomfort and distress about being lesbian, gay, or bisexual was related to their gender dysphoria, transition, or detransition, or that they assumed they were transgender because they did not yet understand themselves to be lesbian, gay or bisexual. The *social pressure to transition* narrative was identified with an affirmative

answer to whether they felt pressured to transition with an open-text response indicating that the pressure came from a person or group of people. The *misogyny* narrative was identified for natal female respondents with open-text responses using the word "misogyny" or expressing a hatred of femaleness.

Gender Identification at Start of Transition and at Survey Completion

Participants were asked how they identified their gender when they started their transition and at the time of survey completion. They were given options of female, male, nonbinary/genderqueer, trans man/FTM, trans woman/MTF, none of the above, and other. Responses were coded by natal sex and categorized as transgender, birth sex, nonbinary, and other. Answers that were combinations of the above categories were reported as combinations such as "birth sex and nonbinary."

Self-Appraisal of Transition and Detransition

One question asked if participants believe they were helped and another if they were harmed by their transition with options of "very much," "a little," or "not at all." These results were categorized into exclusively helped, exclusively harmed, and both helped and harmed. Participants were asked which of the following reflected their feelings about their transition: "I am glad that I transitioned," "I wish I had never transitioned," "Transitioning distracted me from what I should have been doing," "Transition was a necessary part of my journey." Participants were asked to rate their regret about their transition ("no regrets," "mild regrets," "strong regrets," and "very strong regrets") and were asked to indicate their satisfaction with their decisions to transition and detransition ("extremely satisfied," "very satisfied," "somewhat satisfied," "somewhat dissatisfied," "very dissatisfied," and "extremely dissatisfied"). Satisfaction options were collapsed into "satisfied" and "dissatisfied." In addition, participants were asked if they knew then what they know now, would they have chosen to transition.

Data Analysis

After data were cleaned, statistical analyses were performed using google sheets. Results are presented as frequencies, percentages, medians, means and standard deviations. *t* tests and chi-square tests were performed for selected variables and were considered significant for $p < .05$. Qualitative data were obtained from the open-text answers to questions that allowed participants to provide additional information. Selected open-text responses were categorized, tallied, and reported numerically. Salient respondent quotes and summaries from the qualitative data were selected to illustrate the quantitative results and to provide relevant examples.

Results

Before Transition

Mental health diagnoses and traumatic experiences before the onset of gender dysphoria. Table 2 shows data about psychiatric disorders, neurodevelopmental disabilities, NSSI, and trauma that were reported as occurring prior to the onset of gender dysphoria. Because these conditions and events occurred before participants began to feel gender dysphoric, they cannot be considered to be secondary to gender incongruence or transphobia.

Gender dysphoria onset and typology. Most participants (82.0%) were living with one or both parents when they first experienced gender dysphoria at a mean age of 11.2 years (SD = 5.6). The mean age of gender dysphoria onset was not statistically different between natal females ($M = 11.3$; SD = 5.4) and natal males ($M = 11.0$; SD = 5.9), $t(96) = 0.25$. By Blanchard typologies, 26.1% of natal females were exclusively homosexual and 73.9% non-homosexual while 6.5% of natal males were exclusively homosexual and 93.5% non-homosexual (Blanchard, 1985, 1989). Slightly more than half of the respondents (56.0%) experienced early-onset gender dysphoria and slightly less than half (44.0%) experienced late-onset gender dysphoria. Although late-onset gender dysphoria in natal females was largely absent from the scientific literature prior to 2012 (Steensma et al., 2013; Zucker & Bradley, 1995; Zucker et al., 2012a), 55.1% of the natal female participants reported that their gender dysphoria began with puberty or later. Because the information about the timing of gender dysphoria onset was obtained from participants reporting on their own experiences, it can be assumed that these cases were indeed late-onset rather than early-onset gender dysphoria that was concealed from parents and other people.

Transition reasons. Table 3 shows data about the reasons that individuals wanted to transition and the most frequently endorsed were: wanting to be perceived as the target gender (77.0%); believing that transitioning was their only option to feel better (71.0%); the sensation that their body felt wrong the way it was (71.0%), and not wanting to be associated with their natal sex (70.0%). Most participants believed that transitioning would eliminate (65.0%) or decrease (63.0%) their gender dysphoria and that with transitioning they would become their true selves (64.0%).

Sources of transition encouragement and friend group dynamics. Participants identified sources that encouraged them to believe transitioning would help them. Social media and online communities were the most frequently reported, including YouTube transition videos (48.0%), blogs (46.0%), Tumblr (45.0%), and online communities (43.0%) (see supplemental materials). Also common were people who the respondents knew offline such as therapists (37.0%); someone (28.0%) or a group of friends (27.0%) that they knew in-person. A subset of

Table 2 Mental health diagnoses and traumatic experiences prior to the onset of gender dysphoria

	Natal female *N* (%) *N* = 69	Natal male *N* (%) *N* = 31
*Diagnosed with a mental illness or neurodevelopmental disability**[a]		
Depression	27 (39.1%)	5 (16.1%)
Anxiety	22 (31.9%)	5 (16.1%)
Attention deficit hyperactivity disorder (ADHD)	10 (14.5%)	2 (6.5%)
Post-traumatic stress disorder (PTSD)	10 (14.5%)	1 (3.2%)
Eating disorders	10 (14.5%)	0 (0%)
Autism spectrum disorders	9 (13.0%)	1 (3.2%)
Bipolar disorder	9 (13.0%)	0 (0%)
Obsessive compulsive disorder	6 (8.7%)	3 (9.7%)
Borderline personality disorder	5 (7.2%)	0 (0%)
Schizophrenia or other psychotic disorders	1 (1.4%)	0 (0%)
None of the above	28 (40.6%)	17 (54.8%)
Other	7 (10.1%)	2 (6.5%)
Non-suicidal self-injury (NSSI)[b]		
Engaged in NSSI before the onset of gender dysphoria	19 (27.5%)	5 (16.1%)
Trauma[c]		
Experienced a trauma less than one year before the start of gender dysphoria	33 (47.8%)	4 (12.9%)

*May select more than one answer

[a]Natal sex difference for one or more pre-existing diagnoses (100-none of the above) was not significant [$\chi^2(1, 100) = 1.76$]

[b]Natal sex differences for NSSI before the onset of gender dysphoria was not significant ($\chi^2 = 1.52$)

[c]Experiencing a trauma less than one year before the start of gender dysphoria was statistically different [$\chi^2(1, 100) = 11.19$, $p < .001$] with natal females > natal males

Table 3 Transition reasons

	Natal female *N* (%) *N* = 69	Natal male *N* (%) *N* = 31
*Reasons for transition**		
I wanted others to perceive me as the target gender	53 (76.8%)	24 (77.4%)
I thought transitioning was my only option to feel better	50 (72.5%)	21 (67.7%)
My body felt wrong to me the way it was	50 (72.5%)	21 (67.7%)
I didn't want to be associated with my natal sex/natal gender	51 (73.9%)	19 (61.3%)
It made me uncomfortable to be perceived romantically/sexually as a member of my natal sex/natal gender	49 (71.0%)	18 (58.1%)
I thought transitioning would eliminate my gender dysphoria	43 (62.3%)	22 (71.0%)
I felt I would become my true self	42 (60.9%)	22 (71.0%)
I identified with the target gender	40 (58.0%)	24 (77.4%)
I thought transitioning would lessen my gender dysphoria	45 (65.2%)	18 (58.1%)
I felt I would fit in better with the target gender	36 (56.5%)	20 (64.5%)
I felt I would be more socially acceptable as a member of the target gender	38 (55.1%)	11 (35.5%)
I felt I would be treated better if I was perceived as the target gender	35 (50.7%)	14 (45.2%)
I saw myself as a member of the target gender	31 (44.9%)	18 (58.1%)
I thought transitioning would reduce gender-related harassment or trauma I was experiencing	35 (50.7%)	5 (16.1%)
I had erotic reasons for wanting to transition	9 (13.0)	12 (38.7%)
Other	9 (13.0%)	3 (9.7%)

*May select more than one answer

participants experienced the friendship group dynamics identified in previous work, including belonging to a friendship group that mocked people who were not transgender (22.2%), having one or more friend from the pre-existing friend group transition before the participant decided to transition (36.4%), and experiencing an increase in popularity after announcing plans to transition (19.6%) (Littman, 2018). Most did not have this experience (68.7%, 61.6%, and 62.9%, respectively).

Pressure to transition. More than a third of the participants (37.4%) felt pressured to transition. Natal sex differences in feeling pressured to transition were significant by chi-square test with natal females > natal males $\chi^2(1, 99) = 4.22$, $p = .04$. Twenty-eight participants provided open-text responses of which 24 described sources of pressure (17 described social pressures and 7 described sources that were not associated with other people). Clinicians, partners, friends, and society were named as sources that applied pressure to transition, as seen in the following quotes: "My gender therapist acted like it [transition] was a panacea for everything;" "[My] [d]octor pushed drugs and surgery at every visit;" "I was dating a trans woman and she framed our relationship in a way that was contingent on my being trans;" "A couple of later trans friends kept insisting that I needed to stop delaying things;" "[My] best friend told me repeatedly that it [transition] was best for me;" "The forums and communities and internet friends;" "By the whole of society telling me I was wrong as a lesbian;" and "Everyone says that if you feel like a different gender…then you just are that gender and you should transition." Participants also felt pressure to transition that did not involve other people as illustrated by the following: "I felt pressured by my inability to function with dysphoria" and "Not by people. By my life circumstances."

Experiences with clinicians. When participants first sought care for their gender dysphoria or desire to transition, more than half of the participants (53.0%) saw a psychiatrist or psychologist; about a third saw a primary care doctor (34.0%) or a counselor (including licensed clinician social worker, licensed professional counselor, or marriage and family therapist) (32.0%); and 17.0% saw an endocrinologist. For transition, 45.0% of participants went to a gender clinic (44.4% of those attending a gender clinic specified that the gender clinic used the informed consent model of care); 28.0% went to a private doctor's office; 26.0% went to a group practice; and 13.0% went to a mental health clinic (see supplemental materials).

The majority (56.7%) of participants felt that the evaluation they received by a doctor or mental health professional prior to transition was not adequate and 65.3% reported that their clinicians did not evaluate whether their desire to transition was secondary to trauma or a mental health condition. Although 27.0% believed that the counseling and information they received prior to transition was accurate about benefits and risks, nearly half reported that the counseling was overly positive about the benefits of transition (46.0%) and not negative enough about the risks (26.0%). In contrast, only a small minority found the counseling not positive enough about benefits (5.0%) or too negative about risks (6.0%) suggesting a bias toward encouraging transition.

Transition

Participants were on average 21.9 years old (SD = 6.1) when they sought medical care to transition with natal females seeking care at younger ages ($M = 20.0$; SD = 4.2) than natal males ($M = 26.0$; SD = 7.5), $t(97) = -5.07$, $p < .001$. Given that the majority of natal males were categorized as Blanchard typology non-homosexual, the finding that natal males sought medical care to transition at older ages than natal females is concordant with previous research (Blanchard et al., 1987). The average year for seeking care was more recent for natal females ($M = 2011$; SD = 3.8) than natal males ($M = 2007$; SD = 6.9), $t(96) = 2.78$, $p = .007$, and thus, there may have been differences in the care they received due to differences in the culture surrounding transition and the prevailing medical approaches to gender dysphoria for the time.

At the start of transitioning, nearly all (98.0%) of the participants identified as either transgender (80.0%), nonbinary (15.0%), or both transgender and nonbinary (3.0%). Participants identified which social, medical, and surgical steps they had taken to transition. Table 4 shows these steps, separated by natal sex where appropriate. Most respondents adopted new pronouns (91.0%) and names (88.0%), and the vast majority (97.1%) of natal females wore a binder. Most participants took cross-sex hormones (96.0%) and most natal males took anti-androgens (87.1%). The most frequent transition surgery was breast or chest surgery for natal females (33.3%). Genital surgery was less common (1.4% of natal females and 16.1% of natal males). Natal females took testosterone for a mean duration of 2.0 years (SD = 1.6). Natal males took estrogen for a mean duration of 5.1 years (SD = 5.9) and anti-androgens for 2.8 years (SD = 2.6). The minority of patients who took puberty blockers took them for a mean duration of less than a year ($M = 0.9$ years; SD = 0.6).

Detransition

Before deciding to detransition, participants remained transitioned for a mean duration of 3.9 years (SD = 4.1) with natal females remaining transitioned for a shorter period of time ($M = 3.2$ years; SD = 2.7) than natal males ($M = 5.4$ years; SD = 6.1), $t(96) = -2.40$, $p = .018$. When participants decided to detransition they were a mean age of 26.4 years old (SD = 7.4) though natal females were significantly younger ($M = 23.6$; SD = 4.5) than natal males ($M = 32.7$; SD = 8.8), $t(97) = -6.75$, $p < .001$. The mean calendar year when participants decided to detransition was 2014 ($M = 2014$; SD = 3.3), but the difference

Table 4 Steps taken for social, medical, and surgical transition

	N (%)
*Social transition**	
Pronouns	91 (91.0%)
Different name	88 (88.0%)
Clothes/hair/makeup	90 (90.0%)
Legal name change	49 (49.0%)
Gender/sex changed on government documents	36 (36.0%)
Voice training	20 (20.0%)
Natal female	
Wore a binder	67 (97.1%)
*Medical transition**	
Cross-sex hormones	96 (96.0%)
Puberty blockers	7 (7.0%)
Natal male	
Anti-androgens	27 (87.1%)
*Surgical transition**	
Face/neck surgery	5 (5.0%)
Natal female	
Breast/chest surgery	23 (33.3%)
Genital surgery (to create a penis)	1 (1.4%)
Natal male	
Breast implants	5 (16.1%)
Genital surgery (to create a vagina)	5 (16.1%)

*May select more than one answer

between natal females and natal males was not significant ($M = 2014$, SD = 3.3; $M = 2014$, SD = 3.5), $t(95) = 0.52$.

Respondents detransitioned for a variety of reasons and most (87.0%) selected more than one reason. The most frequently endorsed reason for detransitioning was that the respondent's personal definition of male and female changed and they became comfortable identifying with their natal sex (60.0%) (see Table 5). Other commonly endorsed reasons were concerns about potential medical complications (49.0%); transition did not improve their mental health (42.0%); dissatisfaction with the physical results of transition (40.0%); and discovering that something specific like trauma or a mental health condition caused their gender dysphoria (38.0%). External pressures to detransition such as experiencing discrimination (23.0%) or worrying about paying for treatments (17.0%) were less common.

Encouragement and pressure to detransition. Participants were asked to select sources that encouraged them to believe that detransitioning would help them. These included blogs (37.0%), Tumblr (35.0%), and YouTube detransition videos (23.0%) (see supplemental materials). At some point in their process, 23.2% felt pressured to detransition. There was no significant difference between natal females and natal males for feeling pressured to detransition, $\chi^2(1, 99) = 1.11$. Of the 21 open-text responses provided, 14 respondents expressed social pressure to detransition; three expressed internal pressure to detransition and four provided responses that were neither

Table 5 Reasons for detransitioning

	Natal female *N* (%) $N = 69$	Natal male *N* (%) $N = 31$
*Reasons for detransitioning**		
My personal definition of female or male changed and I became more comfortable identifying as my natal sex	45 (65.2%)	15 (48.4%)
I was concerned about potential medical complications from transitioning	40 (58.0%)	9 (29.0%)
My mental health did not improve while transitioning	31 (44.9%)	11 (35.5%)
I was dissatisfied by the physical results of the transition/felt the change was too much	35 (50.7%)	5 (16.1%)
I discovered that my gender dysphoria was caused by something specific (ex, trauma, abuse, mental health condition)	28 (40.6%)	10 (32.3%)
My mental health was worse while transitioning	27 (39.1%)	9 (29.0%)
I was dissatisfied by the physical results of the transition/felt the change was not enough	22 (31.9%)	11 (35.5%)
I found more effective ways to help my gender dysphoria	25 (36.2%)	7 (22.6%)
My physical health was worse while transitioning	21 (30.4%)	11 (35.5%)
I felt discriminated against	12 (17.4%)	11 (35.5%)
I had medical complications from transitioning	12 (17.4%)	7 (22.6%)
Financial concerns about paying for transition care	11 (15.9%)	6 (19.4%)
My gender dysphoria resolved	10 (14.5%)	5 (16.1%)
My physical health did not improve while transitioning	9 (13.0%)	2 (6.5%)
I resolved the specific issue that was the cause of my gender dysphoria	6 (8.7%)	4 (12.9%)
I realized that my desire to transition was erotically motivated	1 (1.4%)	5(16.1%)
Other	19 (27.5%)	6 (19.4%)

*May select more than one answer

or unclear. Regarding social pressure to detransition, seven participants expressed that the pressure came from partners, parents, or other family members as shown in the following example quotes: "I was threatened that if I did not immediately detransition I would NEVER see my […] children again," "My father very much wanted me to desist," and "Parents constantly encouraging me to detransition." Five participants expressed societal pressure to detransition as expressed in the following quotes: "I did not pass, I was mocked in public, I could not get a job. It was not ok to be trans" and "Well, I mean basically the entire world was against me transitioning, so yeah." One participant felt pressured by doctors and another one from a blog.

Detransition steps. Table 6 shows data about the social, medical, and surgical steps participants took to detransition. Nearly all participants medically detransitioned by ceasing cross-sex hormones (95.0%). Social detransition steps were also common and included returning to the use of previously used pronouns (63.0%) and birth names (33.0%) and changing one's clothes and hair presentations (48.0%). Surgical detransition steps were less common (9.0%).

Finding better ways of coping with gender dysphoria**.** Participants were asked to select responses that that they considered to have been better ways for them to cope with their gender dysphoria. Responses included community (44.0%), mindfulness/meditation (41.0%), exercise (39.0%), therapy (24.0%), trauma work (24.0%), medication to treat a mental health condition (18.0%), and yoga (14.0%).

Table 6 Social, medical, and surgical detransition steps

	N (%)
*Social detransition**	
Previous pronouns	63 (63.0%)
Clothes/hair/makeup	48 (48.0%)
Birth name	33 (33.0%)
New name (not birth name)	24 (24.0%)
None of the above	2 (2.0%)
*Medical detransition**	
Stopped cross-sex hormones	95 (95.0%)
Stopped puberty blockers	4 (4.0%)
Started hormones consistent with natal sex	14 (14.0%)
Natal male	
Stopped anti-androgens	17 (54.8%)
*Surgical detransition**	
Surgery to reverse changes from transition	9 (9.0%)

*May select more than one answer

Transition and Detransition Narratives

Several transition and detransition narratives emerged from the data. A sizable minority of participants (41.0%) expressed more than one narrative in their responses.

The *discrimination and external pressures to detransition* narrative was described by 29.0% of participants. Examples include: "I had to detransition in order to get a job"; "I was afraid of being homeless and unable to support myself"; "I felt much happier with myself but I couldn't go anywhere without being afraid. I passed okay but not perfectly. I was stared down and sneered at in the women's clothes section, I wouldn't dare use a public toilet because I'd find either violent men or women who wished an encounter with a violent man on me."

A *nonbinary* narrative was expressed by 16.0% of participants. Some described that they discovered their nonbinary gender identity during their transition, as in the following quotes: "I still was uncomfortable with my body and figured I should stop and make sure I really wanted to keep going. I didn't and I decided I must be nonbinary, not FTM"; "Transitioning didn't do what I thought I wanted it to. I had transitioned to the wrong gender. I still felt wrong. Then, I realized I was not male, but genderqueer. I detransitioned to suit my true identity." And others described a consistent nonbinary identification, as in the following quote, "I identified the same way that I did before. I had gotten what I wanted out of HRT and was ready to stop taking it." (Cross-sex hormones are sometimes referred to as "hormone replacement therapy" and abbreviated as HRT).

Three participants (3.0%) expressed the *retransition* narrative in open-text answers indicating that they had retransitioned, including the following quotes: "I am now transitioning for a second time"; I retransitioned after 5 years of detransitioning"; and "Anyway, I retransitioned over 10 years after detransitioning."

Most participants (58.0%) expressed the *gender dysphoria was caused by trauma or a mental health condition* narrative which included endorsing the response options indicating that their gender dysphoria was caused by something specific, such as a trauma or a mental health condition. More than half of the participants (51.2%) responded that they believe that the process of transitioning delayed or prevented them from dealing with or being treated for trauma or a mental health condition. The following are example quotes that were in response to why participants chose to detransition: "I slowly began addressing the mental health conditions and traumatic experiences that caused such a severe disconnect between myself and my body…"; "I was starting to become critical of transition because I felt that many people were doing it out of self-hatred and started to realize that applied to me as well"; "I was deeply uncomfortable with my secondary sex characteristics, which I now understand was a result of childhood trauma and associating my secondary sex characteristics with those events."

Despite the absence of any questions about this topic in the survey, nearly a quarter (23.0%) of the participants expressed the *internalized homophobia and difficulty accepting oneself as lesbian, gay, or bisexual* narrative by spontaneously describing that these experiences were instrumental to their gender dysphoria, their desire to transition, and their detransition. All

of the participants in this category indicated that they were either same-sex attracted exclusively or were same-sex attracted in combination with opposite-sex attraction (such as bisexual, pansexual, etc.). The following responses were written in as "other" for the question about why participants transitioned: "Transitioning to male would mean my attraction to girls would be 'normal'"; "being a 'gay trans man' (female dating other females) felt better than being a lesbian, less shameful"; "I felt being the opposite gender would make my repressed same-sex attraction less scary"; "I didn't want to be a gay man." Some participants described that it took time for them to gain an understanding of themselves as lesbian, gay, or bisexual as seen in the following: "At the time I was trying to figure out my identity and felt very male and thought I was transgender. I later discovered that I was a lesbian…"; and "Well, after deep discovery, I realized I was a gay man and realized that a sexual trauma after puberty might [have] confused my thought. I wanted to live as a gay man again." Several natal female respondents expressed that seeing other butch lesbians would have been helpful to them as shown by the following: "What would have helped me is being able to access women's community, specifically lesbian community. I needed access to diverse female role-models and mentors, especially other butch women."

The *social influence* narrative was identified where participants added information to the question about if they had felt pressured to transition and the response described pressure from a person or people. One-fifth (20.0%) of participants expressed that they felt pressured by a person or people to transition. Example quotes for social influence were described in a previous section.

Of the natal females, 7.2% expressed the *misogyny* narrative. Example quotes include: "…I realized how much of it [dysphoria] may have been caused by internalized misogyny and homophobia"; "Finally realizing there's nothing wrong or disgusting or weak about being female"; and "My transition was a desperate attempt to distance myself from womanhood and femaleness due to internalized lesbophobia and misogyny combined with a history of sexual trauma."

After Detransition

Disposition. At the time of survey completion, most participants had returned to identifying solely as their birth sex (61.0%) with an additional 10.0% identifying as their birth sex plus another identification. Fourteen percent of the participants identified solely as nonbinary with an additional 11.0% identifying as nonbinary plus a second identification. Eight percent of the participants identified solely as transgender with an additional 5.0% identifying as transgender plus another identification. Four percent of the responses did not fit into the above categories and were coded as "other." Figure 1 illustrates the distribution of participants' current gender identification (post-detransition). Only 24.0% of participants had informed

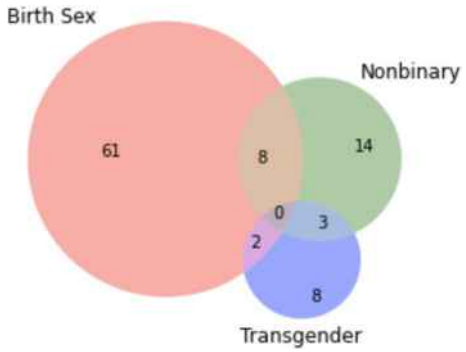

Fig. 1 Distribution of participants' current gender identification (after detransition) (n = 100). *Notes*: The sum of the numbers appearing in the "Birth Sex" circle indicates the number of participants who returned to identifying with their birth sex (71)—either as birth sex alone (61) or birth sex in addition to a second identification (10) represented in the overlap between two circles. For example, eight participants identify as their birth sex and as nonbinary. The sum of the numbers appearing in the "Nonbinary" circle indicates the number of participants who identify as nonbinary (25)—either as nonbinary alone (14) or nonbinary in addition to a second identification (11). The sum of the numbers appearing in the "Transgender" circle indicates the number of participants who identify as transgender (13)—either as transgender alone (8) or transgender in addition to a second identification (5). Four participants had responses that did not fit the categories above and were coded as "other"

the doctor or clinic that facilitated their transitions that they had detransitioned.

Self-appraisal of past transgender identification. Table 7 presents the data for responses endorsed by participants to reflect how they feel currently about having identified as transgender in the past. The statements most frequently selected included: "I thought gender dysphoria was the best explanation for what I was feeling" (57.0%), "My gender dysphoria was similar to the gender dysphoria of those who remain transitioned" (42.0%), "What I thought were feelings of being transgender actually were the result of trauma" (36.0%), "What I thought were feelings of being transgender actually were the result of a mental health condition" (36.0%).

Self-appraisal of transition and detransition. When asked to select which statement best reflects their feelings about their transition, nearly a third (30.0%) indicated that they wish they had never transitioned while 11.0% indicated they were glad they transitioned. Some (34.0%) selected the statement that transition "was a necessary part of [their] journey" but others (21.0%) indicated that the process of transitioning distracted them from what they should have been doing. Responses about whether transition helped or harmed them were also complicated. While 50.5% selected answers consistent with being both helped and harmed, 32.3% indicated that they were only harmed and 17.2% indicated that they were only helped. The majority of respondents were dissatisfied with their decision to transition (69.7%) and satisfied with their decision to detransition (84.7%). At least some amount of transition regret was

Table 7 Self-appraisal of past transgender identification

	Natal female *N* (%) *N* = 69	Natal male *N* (%) *N* = 31
*Self-appraisal about identifying as transgender in the past**		
I thought gender dysphoria was the best explanation for what I was feeling	39 (56.5%)	18 (58.1%)
My gender dysphoria was similar to the gender dysphoria of those who remain transitioned	32 (46.4%)	10 (32.3%)
What I thought were feelings of being transgender actually were the result of trauma	31 (44.9%)	5 (16.1%)
What I thought were feelings of being transgender actually were the result of a mental health condition	28 (40.6%)	8 (25.8%)
Someone else told me that the feelings I was having meant that I was transgender and I believed them	25 (36.2%)	10 (32.3%)
I still identify as transgender	20 (29.0%)	10 (32.3%)
I believed I was transgender then, but I was mistaken	16 (23.2%)	6 (19.4%)
I was transgender then but I am not transgender now	15 (21.7%)	7 (22.6%)
I formerly identified as transgender and now identify as genderqueer/nonbinary	12 (17.4%)	5 (16.1)
My gender dysphoria was different from the gender dysphoria of those who remain transitioned	11 (15.9%)	4 (12.9%)
I was never transgender	8 (11.6%)	3 (9.7%)
I thought I had gender dysphoria but I was mistaken	4 (5.8%)	4 (12.9%)
I never had gender dysphoria	1 (1.4)	2 (6.5%)
N/A as I did not identify as transgender in the past	0 (0%)	1 (3.2%)
Other	18 (26.1%)	5 (16.1%)

*May select more than one answer

common (79.8%) and nearly half (49.5%) reported strong or very strong regret. Most respondents (64.6%) indicated that if they knew then what they know now, they would not have chosen to transition.

Discussion

This study was designed to explore the experiences of individuals who obtained medical and surgical treatment for gender dysphoria and then detransitioned by discontinuing the medications or having surgery to reverse the changes from transition. The findings of this study, however, should not be assumed to be representative of all individuals who detransition. Although this study further documents that detransitioners exist, the prevalence of detransition as an outcome of transition is unknown. Only a small percentage of detransitioners (24.0%) informed the clinicians and clinics that facilitated their transitions that they had detransitioned. Therefore, clinic rates of detransition are likely to be underestimated and gender transition specialists may be unaware of how many of their own patients have detransitioned, particularly for patients who are no longer under their care.

This research demonstrates that the experiences of individuals who detransition are varied and the reasons for detransition are complex. Nearly all participants identified as transgender or nonbinary at the start of their transition and most sought transition because they did not want to be associated with their natal sex, their bodies felt wrong the way they were, and they believed that transition was the only option to relieve their distress. Some were helped by transition and only detransitioned because they were pressured to do so by people in their lives, society, or because they had medical complications. Some were harmed by transition and detransitioned because they concluded that their gender dysphoria was caused by trauma, a mental health condition, internalized homophobia, or misogyny—conditions that are not likely to be resolved with transition. These findings highlight the complexity of gender dysphoria and suggest that, in some cases, failure to explore co-morbidities and the context in which the gender dysphoria emerged can lead to misdiagnosis, missed diagnoses, and inappropriate gender transition. Some individuals detransitioned because their gender dysphoria resolved, because they found better ways to address their symptoms, or because their personal definitions of male and female changed and they became comfortable identifying as their natal sex.

The study sample was predominantly young natal females, many of whom experienced late-onset gender dysphoria which mirrors the recent, striking changes in the demographics of gender dysphoric youth seeking care as well as the youth described by their parents in Littman (2018) (see also Aitken et al., 2015; de Graaf et al., 2018; Zucker, 2019). Concerns have been raised that this new cohort of gender dysphoric individuals is unlike previous cohorts. Professionals have started to call for caution before treating this cohort with interventions with permanent effects because the etiologies, desistance and persistence rates,

expected duration of symptoms, and whether this new population is helped or harmed by gender transition is still unknown (D'Angelo et al., 2021; Kaltiala-Heino et al., 2018). The natal females and natal males in this sample differed on several dimensions, including that natal females were younger than natal males when they sought transition, when they decided to detransition, and at the time of survey completion. Natal females were more likely than natal males to have experienced a trauma less than one year before the onset of their gender dysphoria and were more likely to have felt pressured to transition. Compared to natal males, natal females remained transitioned for a shorter duration of time before deciding to detransition. Additionally, natal females transitioned more recently than natal males, so their experiences may vary due to changing trends in the clinical management of gender dysphoria and the cultural settings in which they became gender dysphoric.

The study findings covered a wide range of detransition experiences that are consistent with the diversity of experiences described in previously published clinical case reports and case series. Overlap of findings include: transition regret; absence of transition regret; re-identification with birth sex; continued identification as transgender; improvement or worsening of well-being with transition; retransitioning; detransitioning due to external social pressures; nonbinary identification; and recognizing and accepting oneself as homosexual or bisexual (D'Angelo, 2018; Djordjevic et al., 2016; Levine, 2018; Pazos Guerra et al., 2020; Turban & Keuroghlian, 2018; Turban et al., 2021; Vandenbussche, 2021). The population in this study is similar to the population in Vandenbussche in that both were predominantly natal females in their mid-20s. Because the current study recruited in 2016–2017 and Vandenbussche recruited in 2019, the similar mean age of participants may reflect the age of individuals who can be reached in online detransitioner communities. Several findings in this study were consistent with Vandenbussche's findings, including similar reasons for detransition (realizing that their gender dysphoria was related to other issues, finding alternatives to address gender dysphoria, gender dysphoria resolved, etc.). Although these two studies were recruited in different years, had different eligibility criteria, and included participants from several countries, it is possible that there may be some overlap of study populations.

The current study findings provide additional insight into the complex relationships between internalized homophobia, gender dysphoria, and desire to transition. Contrary to arguments against the potential role of homophobia in gender transitions (Ashley, 2020), participants reported that their own gender dysphoria and desire to transition stemmed from the discomfort they felt about being same-sex attracted, their desire to not be gay, and the difficulties that they had accepting themselves as lesbian, gay or bisexual. For these individuals, exploring their distress and discomfort around sexual orientation issues may have been more helpful to them than medical and surgical transition or at least an important part of exploration before making the decision to transition. This research adds to the existing evidence that gender dysphoria can be temporary (Ristori & Steensma, 2016; Singh et al., 2021; Zucker, 2018). It has been established that the most likely outcome for prepubertal youth with gender dysphoria is to develop into lesbian, gay, bisexual (LGB) (non-transgender) adults (Ristori & Steensma, 2016; Singh et al., 2021; Wallien & Cohen-Kettenis, 2008; Zucker, 2018). And, temporary gender dysphoria may be a common part of LGB identity development (Korte et al., 2008; Patterson, 2018). Therefore, intervening too soon to medicalize gender dysphoric youth risks iatrogenically derailing the development of youth who would otherwise grow up to be LGB non-transgender adults. Participants who detransitioned because they became comfortable identifying as their natal sex and because their gender dysphoria resolved further support that gender dysphoria is not always permanent.

The data in this study strengthen, with first-hand accounts, the rapid-onset gender dysphoria (ROGD) hypotheses which, briefly stated, are that psychosocial factors (such as trauma, mental health conditions, maladaptive coping mechanisms, internalized homophobia, and social influence) can cause or contribute to the development of gender dysphoria in some individuals (Littman, 2018). Littman also postulated that certain beliefs could be spread by peer contagion, including the belief that a wide range of symptoms should be interpreted as gender dysphoria (and proof of being transgender) and the belief that transition is the only solution to relieve distress. The current study supports the potential role of psychosocial factors in the development of gender dysphoria and further suggests, by participant responses that transitioning prevented or delayed them from addressing their underlying conditions, that maladaptive coping mechanisms may be relevant for some individuals. The potential role of social influence is demonstrated as well. First, when respondents were asked to describe how they currently feel about having identified as transgender in the past, more than a third endorsed the option, "Someone told me that the feelings I was having meant that I was transgender, and I believed them." Second, a subset of participants experienced the unique friendship group dynamics reported in Littman where peer groups mocked people who were not transgender and popularity within the friend group increased when respondents announced their plan to transition. Additionally, respondents identified several social sources that encouraged them to believe that transitioning would help them including: YouTube transition videos, blogs, Tumblr, and online communities. And finally, 20.0% of participants felt pressured to transition by social sources that included friends, partners, and society. More research is needed to further explore these hypotheses.

The current study and the Turban et al. (2021) analysis of the USTS data share some similarities and differences. Similarities include the use of convenience samples, targeted recruitment, and anonymous data collection. The findings of Turban et al. (including external pressures to detransition and transgender

identification after detransition) are a subset of the array of experiences described in the current study. The current study differed from James et al. (2016) and Turban et al. in that it enrolled participants based on the criterion of detransition after medical or surgical transition regardless of how they currently identified, recruited from communities with diverse perspectives about transition and detransition, used a precise definition for detransition that specifies the use of medication or surgery, and included answer options that were relevant to many different types of detransition experiences. In contrast, the USTS only enrolled transgender-identifying individuals regardless of whether they medically or surgically transitioned, recruited from communities likely to have similar perspectives about transition and detransition, and provided multiple choice answer options that were relevant to a narrower range of detransition experiences (James et al., 2016). Further, the definition used by the USTS for "detransitioned" (having "gone back to living as [their] sex assigned as birth, at least for a while") is quite vague. Although Turban et al. provide valuable information about the subset of transgender-identifying people who may have detransitioned, the current study provides a more comprehensive view of individuals who detransition after medical or surgical transition.

Over the past 15 years, there have been substantial changes in the clinical approach to gender dysphoric patients notable for a shift from approaches that employ thorough evaluations and judicious use of medical and surgical transition (the watchful waiting or Dutch approach, the developmentally informed approach, and the medical model of care) to approaches with minimized or eliminated evaluation and liberal use of transition interventions (the affirmative approach and the informed consent model of care) (Cavanaugh et al., 2016; de Vries & Cohen-Kettenis, 2012; Meyer et al., 2002; Rafferty et al., 2018; Schulz, 2018; Zucker et al., 2012b). This trend is prominent in the U.S. where the American Academy of Pediatrics endorsed the affirmative approach in 2018 and Planned Parenthood currently uses the informed consent model to provide medical transition in more than 200 clinics in 35 states (Planned Parenthood, 2021; Rafferty et al., 2018). It is plausible that an unintended consequence of these clinical shifts may be an increase in people who detransition. Many participants in this study believe that they did not receive an adequate evaluation by a clinician before transition. The definition of "adequate evaluation" was not provided in the survey and may be open to respondent interpretation. But given the complexities of the gender dysphoria described in the current study, one might consider a low bar of "adequate" to be the exploration of factors that could be misinterpreted as non-temporary gender dysphoria as well as factors that could be underlying causes for gender dysphoria. The most recently emerging approach to gender dysphoria is called the "exploratory approach" which is a neutral psychotherapeutic approach to help individuals gain a deeper understanding of their gender distress and the factors contributing to their dysphoria (Churcher Clarke & Spiliadis, 2019; Spiliadis, 2019). The study's findings suggest that an exploratory type of approach may have been beneficial to some of the respondents. Future research is needed to determine which patients are best treated by which approaches long term.

Patients considering medical and surgical interventions deserve accurate information about the risks, benefits, and alternatives to that treatment. In this sample, nearly half of the participants reported that the counseling they received about transition was overly positive about the benefits of transition and more than a quarter reported that the counseling was not negative enough about the risks. Several participants felt pressured to transition by their doctors and therapists. If these types of clinical interactions are verified, exploration is needed to determine the extent to which this situation occurs and what measures might be taken to ensure that clinicians provide patients with their options accurately and dispassionately.

There are several obstacles to obtaining accurate rates of detransition and desistance, including stigma and the low numbers of detransitioners who inform their clinicians that they detransitioned. One approach to bypass some of these barriers would be to incorporate non-judgmental questions about detransition and desistance into nationally representative surveys that collect health data. For example, the Behavioral Risk Factor Surveillance System contains an optional module about sexual orientation and gender identity that includes two questions to explore gender issues (Downing & Przedworski, 2018). By changing one existing question, "Do you consider yourself to be transgender?" into two questions, "Have you ever, at any point in your life, considered yourself to be transgender?" and "Do you currently consider yourself to be transgender?" and by adding a follow-up question if answers indicate past but not current transgender identification, "Did you ever take puberty blockers, cross-sex hormones, anti-androgens, or have any surgery as part of your transition?", valuable information about desistance, detransition, and current transgender identification could be obtained. These types of questions may also be of use in clinical practice and electronic medical records. The information gained about rates of detransition and desistance would enhance transgender healthcare by aiding informed consent processes at the start of any medical or surgical transition.

One of the strengths of this study is that it is one of the largest samples of detransitioners to date. Other strengths include the use of a precise definition for detransition, enrollment of detransitioners regardless of their post-detransition gender identification, recruitment from communities with likely divergent views about transition and detransition, and collaboration with two individuals who had detransitioned which helped to create a survey instrument with questions relevant to a variety of detransition experiences and enhanced the recruitment efforts.

There are several limitations to this study that should be considered when interpreting the findings. Like Vandenbussche (2021), James et al. (2016), and Turban et al. (2021), this study

used a cross-sectional design, anonymous surveying, and a convenience sample and therefore shares the same limitations that are inherent to these methodologies. These limitations include that conclusions about causation cannot be determined, identities of participants cannot be verified, and the findings of this study may not be generalizable to the entire population of people who detransition or to people outside of the countries where participants were from. Although this study reached out to communities with differing perspectives about transition and detransition, targeted recruitment and convenience samples always introduce the limitations associated with selection biases which should be addressed in future research. Finally, many of the participants in this study had less than ideal outcomes to their medical and surgical transitions, and it is possible that these experiences may have colored some of the responses.

Additional research is needed to determine the prevalence of detransition as an outcome of transition and to identify and meet the psychological and medical needs of the emerging detransitioned population. Because many individuals who detransition re-identify with their birth sex, are no longer connected to LGBT communities, and don't return to gender clinics, future research about detransition needs to expand recruitment efforts beyond gender clinics and transgender communities. The development and testing of non-medical interventions for gender dysphoria could provide valuable options to be used as alternatives or in conjunction with medical and surgical treatments. Because of the potential for some to experience trauma, mental health conditions, internalized homophobia, and misogyny as gender dysphoria, research needs to be conducted on the evaluation process before transition to find approaches that respectfully and collaboratively explore factors that might contribute to gender-related distress. There continues to be an absence of long-term outcomes evidence for youth treated with medical and surgical transition and a lack of information about the trajectories of youth experiencing late-onset gender dysphoria–research is needed to address these gaps. Continued work is needed to reduce rigid gender roles, increase representation of gender stereotype nonconformity, and to address discrimination and social pressures exerted against people who are transgender, lesbian, gay, bisexual, and gender stereotype non-conforming.

Conclusion

This study described individuals who, after transitioning with medications or surgery, have detransitioned. The prevalence of detransitioning after transition is unknown but is likely underestimated because most of the participants did not inform the doctors who facilitated their transitions that they had detransitioned. There is no single narrative to explain the experiences of all individuals who detransition and we should take care to avoid painting this population with a broad brush. Some detransitioners return to identifying with their birth sex, some assume (or maintain) a nonbinary identification, and some continue to identify as transgender. Some detransitioners regret transitioning and some do not. Some of the detransitioners reported experiences that support the ROGD hypotheses, including that their gender dysphoria began during or after puberty and that mental health issues, trauma, peers, social media, online communities, and difficulty accepting themselves as lesbian, gay, or bisexual were related to their gender dysphoria and desire to transition. Natal female and natal male detransitioners appear to have differences in their baseline characteristics and experiences and these differences should be further delineated. Future research about gender dysphoria and the outcomes of transition should consider the diversity of experiences and trajectories. More research is needed to determine how best to provide support and treatment for the long-term medical and psychological well-being of individuals who detransition. Findings about detransition should be used to improve our understanding of gender dysphoria and to better inform the processes of evaluation, counseling, and informed consent for individuals who are contemplating transition.

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Declarations

Conflict of interest The author has no relevant financial or non-financial conflicts of interest to disclose.

Consent to Participate Electronic consent was obtained from all participants included in the study. On the first page of the online survey, participants were informed of the research purpose and potential risks and benefits of participating, that their participation was voluntary, and were presented with a way to contact the researcher. The research survey questions were displayed only if the participant clicked "agree" which indicated that the participant read the information, voluntarily agreed to participate, and were at least 18 years of age.

Ethical Approval The research was determined to be Exempt Human Research by the Program for the Protection of Human Subjects of the Icahn School of Medicine at Mount Sinai in New York, NY. All procedures were performed in accordance with the ethical standards of the Program for the Protection of Human Subjects at the Icahn School of Medicine at Mount Sinai and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

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Detransition-Related Needs and Support: A Cross-Sectional Online Survey

Elie Vandenbussche, BA

Faculty of Society and Economics, Rhine-Waal University of Applied Sciences, Kleve, Germany

ABSTRACT

The aim of this study is to analyze the specific needs of detransitioners from online detrans communities and discover to what extent they are being met. For this purpose, a cross-sectional online survey was conducted and gathered a sample of 237 male and female detransitioners. The results showed important psychological needs in relation to gender dysphoria, comorbid conditions, feelings of regret and internalized homophobic and sexist prejudices. It was also found that many detransitioners need medical support notably in relation to stopping/changing hormone therapy, surgery/treatment complications and reversal interventions. Additionally, the results indicated the need for hearing about other detransitioners' experiences and meeting each other. A major lack of support was reported by the respondents overall, with a lot of negative experiences coming from medical and mental health systems and from the LGBT+ community. The study highlights the importance of increasing awareness and support given to detransitioners.

KEYWORDS

Detransition; gender dysphoria; gender identity; cross-sex hormones; detransitioners; transgender; transition; support

Introduction

In recent years, there has been an increasing interest in the phenomenon of detransition. Many testimonies have been shared by self-identified detransitioners online and detrans communities have formed on social media. This phenomenon started to attract the attention of scholars, who have emphasized the need for research into the specific needs of this group (e.g., Butler & Hutchinson, 2020; Entwistle, 2020; Hildebrand-Chupp, 2020). A few case studies have been conducted in order to explore individual experiences of detransition (Pazos-Guerra et al., 2020; Turban & Keuroghlian, 2018). The latter studies highlighted the complexity of detransition experiences but did not provide sufficient data to assess the general needs and characteristics of detransitioners. The current study aims to explore this issue in more depth and to serve as a basis for future research on the phenomenon of detransition.

To date there has been little agreement on a definition of the word "detransition." As explained by Expósito-Campos (2021), this term has been used interchangeably to refer to what he perceives to be two distinctive situations: in

CONTACT Elie Vandenbussche el.vandenbussche@gmail.com Avenue des Lucioles 11, 1170 Bruxelles, Belgium.

the first, the detransitioning individual stops identifying as transgender; in the second, they do not. It is therefore necessary here to clarify exactly what is meant when writing about detransition.

In this paper, I will be using the following concepts: "medical detransition," "social detransition" and (male or female) "detransitioner." Medical detransition refers to the process of ceasing/reversing the medical aspects of one's medical transition. This might include stopping or changing hormone therapy and undergoing reversal surgeries, among others. Likewise, social detransition refers to the process of changing/undoing the social aspects of one's social transition. For example, it might include presenting oneself as one's birth sex again, changing one's post-transition name or going back to using the pronouns associated with one's birth sex.

The term "detransitioner" will be used here to refer to someone who possibly underwent some of these medical and/or social detransition steps and, more importantly, who identifies as a detransitioner. It is important to add this dimension, because the act of medical/social detransition can be performed by individuals who did not cease to identify as transgender and who do not identify as detransitioners or as members of the detrans community. Furthermore, some individuals might identify as detransitioners after having ceased to identify as trans, while not being in a position to medically or socially detransition due to medical or social concerns. As Hildebrand-Chupp (2020) puts it: "[B]ecoming a detransitioner involves a fundamental shift in one's subjective understanding of oneself, an understanding that is constructed within these communities." (p.802). More qualitative research should be conducted in order to better understand how members of the detrans community define themselves and make sense of their own detransition process. However, this goes beyond the scope of this study.

The creation of support and advocacy groups for detransitioners in recent years (e.g., DetransCanada, n.d., Detrans Voices, n.d., The Detransition Advocacy Network, n.d., Post Trans, n.d.) testifies to the formation of a detrans community whose members have specific needs. Scholars and clinicians have recently started raising concerns around the topic (e.g., Butler & Hutchinson, 2020; Entwistle, 2020; Hildebrand-Chupp, 2020; Marchiano, 2020). However, little research has been done specifically into the characteristics of this seemingly growing community.

Two informal surveys conducted by detransitioners (Hailey, 2017; Stella, 2016) have explored the demographics and (de)transition experiences of members of online female detrans communities. These will constitute interesting points of comparison in the discussion section of the current research.

The purpose of this exploratory study is to offer an overview of the current needs of detransitioners from online detrans communities, which will hopefully serve as a useful basis for further experimental studies around the topic of detransition. The current research primarily seeks to address the following

questions: What are the current needs of detransitioners? What support is given to detransitioners in order to fulfil these needs?

Methods

Procedure

A cross-sectional survey was conducted, using online social media to recruit detransitioners. Access to the questionnaire was open from the 16th of November until the 22nd of December 2019. Any detransitioner of any age or nationality was invited to take part in the study. The survey was shared by Post Trans (www.post-trans.com)—a platform for female detransitioners—via public posts on Facebook, Instagram and Twitter. Participants were also recruited through private Facebook groups and a Reddit forum for detransitioners (r/detrans). Some of the latter platforms were addressed exclusively to female detransitioners. The purpose of the study was presented as gaining a better understanding of detransitioners' current needs. Potential participants were asked to fill out the form and share it to fellow detransitioners. All participants have been fully anonymized.

Everyone who answered "yes" to the question "Did you transition medically and/or socially and then stopped?" was selected in the study. The individual questionnaires of the 9 respondents who answered "no" to this question were looked at closely, in order to assess whether they should be included in the study. Eight of them were added to the final sample, as their other answers indicated that their experiences lead them to identify as detransitioners.

This research was approved by the Ethics Committee for Noninvasive Research on Humans in the Faculty of Society and Economics of the Rhine-Waal University of Applied Sciences

Questionnaire design

The questionnaire consisted of 24 questions (see Appendix). The first series of questions was aimed at defining the profile of the respondent (age, sex, country, etc.), the second was asking about relevant aspects of transition and detransition experiences (transition type, gender dysphoria, therapy, medical interventions, reasons for detransitioning etc.), and the third focused on the needs encountered as well as the support (or lack of) received during the process of detransition (medical, psychological, legal and social needs and support).

Most of the items were multiple-choice questions. The conception of the multiple choices was based on observations drawn from several detransition online resources and forums. An open "other" category was available when relevant for the respondents to write in possibly lacking options. The survey

was designed to leave a lot of free space to add answers, since the detransition population is still very much under-researched and there is a lot to learn from each of its members. This is why a more qualitative approach was taken for the last question notably, leaving an open field for adding comments about the support—or lack of—received while detransitioning. This qualitative data was analyzed through the identification of recurrent themes, which will be presented in the results section.

Participants

A total of 237 participants were included in the final sample. The large majority was female; 217 female (92%) for 20 male respondents (8%). This was determined based on the answers to the question: "What sex were you assigned at birth?" The average age was 25.02 years (SD = 7.72), ranging from 13 to 64. The mean age of female detransitioners (M = 24.38; SD = 6.86) was lower than that of male detransitioners (M = 31.95; SD = 12.26).

Around half of the sample (51%) reported coming from the United States and close to a third from Europe (32%). Fifteen respondents are from Canada (6%), twelve from Australia (5%), and one from each of the following countries: Brazil, Kazakhstan, Mexico, Russia and South Africa.

Close to two thirds (65%) transitioned both socially and medically; 31% only socially. A few respondents rightly criticized the fact that the option of medically transitioning only was not available in the questionnaire. The absence of this option needs to be kept in mind when looking at the results.

Around half (51%) of the respondents started socially transitioning before the age of 18, and a quarter (25%) started medically transitioning before that age as well. The average age of social transition was 17.96 years (17.42 for females; 23,63 for males) (SD = 5.03) and that of medical transition was 20.70 years (20.09 for females; 26.19 for males) (SD = 5.36). Fourteen percent of the participants detransitioned before turning 18. The average age of detransition was 22.88 years (22.22 for females; 30.00 for males) (SD = 6.46). The average duration of transition of the respondents (including both social and medical transition) was 4.71 years (4.55 for females; 6.37 for males) (SD = 3.55).

Eighty percent of the male detransitioners underwent hormone therapy, compared to 62% for female detransitioners. Out of the respondents who medically transitioned, 46% underwent gender affirming surgeries.

Results

For sake of clarity, the results will be presented based on the three categories mentioned above in the methods section: profile of the respondents, relevant aspects of transition and detransition and, finally, detransition-related needs and support. The qualitative results will be displayed at the end of this section.

Profile of the respondents

Most of the information related to the profile of the respondents can be found in the methods section. The sample showed a high prevalence of comorbidities, considering that over half of the participants (54%) reported having had at least 3 diagnosed comorbid conditions (out of the 11 conditions listed in the survey—see Table 1). The most prevalent diagnosed comorbid conditions are depressive disorders (69%) and anxiety disorders (63%), including PTSD (33%) (see Table 1).

Relevant aspects of transition and detransition

A great majority of the sample (84%) reported having experienced both social and body dysphoria. (Social dysphoria being defined as a strong desire to be seen and treated as being of a different gender, and body dysphoria as a strong desire to have sex characteristics of the opposite sex/rejection of your own sex). Eight percent reported having experienced only body dysphoria, 6% only social dysphoria and 2% neither of them.

Forty-five percent of the whole sample reported not feeling properly informed about the health implications of the accessed treatments and interventions before undergoing them. A third (33%) answered that they felt partly informed, 18% reported feeling properly informed and 5% were not sure.

The most common reported reason for detransitioning was realized that my gender dysphoria was related to other issues (70%). The second one was health concerns (62%), followed by transition did not help my dysphoria (50%), found alternatives to deal with my dysphoria (45%), unhappy with the social changes (44%), and change in political views (43%). At the very bottom of the list are: lack of support from social surroundings (13%), financial concerns (12%) and discrimination (10%) (see Figure 1).

34 participants (14%) added a variety of other reasons such as absence or desistance of gender dysphoria, fear of surgery, mental health concerns related

Table 1. Number of participants with comorbid conditions.

Comorbid condition	Diagnosed	Suspected
Depressive disorder	163 (70%)	32 (14%)
Anxiety disorder	149 (63%)	43 (18%)
Post-traumatic stress disorder	79 (33%)	63 (27%)
Attention deficit disorder	57 (24%)	50 (21%)
Autism spectrum condition	47 (20%)	61 (26%)
Eating disorder	46 (19%)	58 (25%)
Personality disorder	40 (17%)	26 (11%)
Obsessive compulsive disorder	35 (15%)	44 (19%)
Polycystic ovary syndrome (only females)	22 (10%)	13 (6%)
Dissociative identity disorder	14 (6%)	23 (10%)
Schizo-spectrum disorder	5 (2%)	9 (4%)

"Diagnosed" and "Suspected" were mutually exclusive categories.

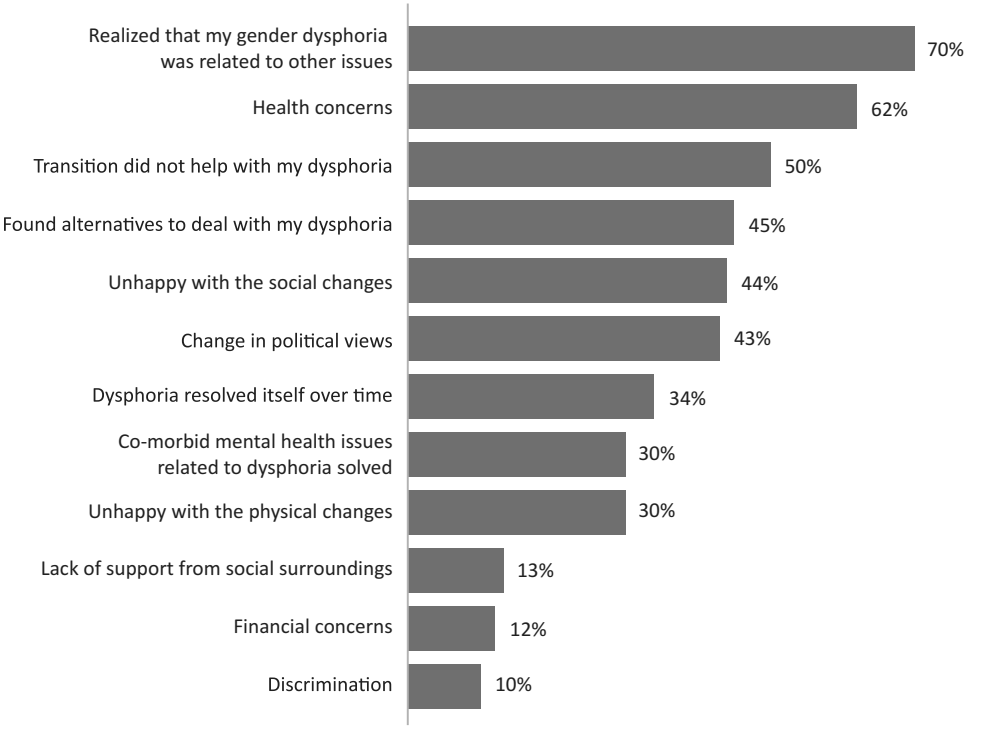

Figure 1. Reasons for detransitioning.

to treatment, shift in gender identity, lack of medical support, dangerosity of being trans, acceptance of homosexuality and gender non-conformity, realization of being pressured to transition by social surroundings, fear of surgery complications, worsening of gender dysphoria, discovery of radical feminism, changes in religious beliefs, need to reassess one's decision to transition, and realization of the impossibility of changing sex.

Detransition-related needs and support

The different types of needs were divided into four categories in the questionnaire: medical, psychological, legal and social needs.

Medical needs

The most commonly chosen answer was the need for receiving accurate information on stopping/changing hormonal treatment (49%), followed by receiving help for complications related to surgeries or hormonal treatment (24%) and receiving information and access to reversal surgeries/procedures (15%). Forty-six percent of the participants reported not having any detransition-related medical need. Sixteen respondents (7%) added another non-listed answer, such as tests to determine current reproductive health, information

about long-term effects of hormone therapy, about the health consequences of having had a full hysterectomy and about pain related to chest binding.

Psychological needs

Psychological needs appeared to be the most prevalent of all, with only 4% of the respondents reporting not having any. The answers working on comorbid mental issues related to gender dysphoria and learning to cope with gender dysphoria; finding alternatives to medical transition are at the top of the list, both with 65%. Below that, learning to cope with feelings of regret (60%), followed by learning to cope with the new physical and/or social changes related to detransitioning (53%) and learning to cope with internalized homophobia (52%). Thirty-four respondents (14%) added another non-listed answer, such as trauma therapy, learning how to deal with shame and internalized misogyny, how to cope with rejection from the LGBT and trans communities and how to deal with the aftermath of leaving a manipulative group. Other answers disclosed the need for help recovering from addictive sexual behavior related to gender dysphoria, psychosexual counseling and peer support.

Legal needs

More than half of the sample (55%) reported not having any detransition-related legal need. The main legal need expressed was changing back legal gender/sex marker and/or name (40%), followed by legal advice and support to take legal action over medical malpractice (13%). Five respondents (2%) added another non-listed answer, such as employment legal aid and support to take legal action for having been forced to go through a sterilization.

Social needs

The big majority of the respondents reported a need for hearing about other detransition stories (87%). The second most common answer was getting in contact with other detransitioners (76%), followed by receiving support to come out and deal with negative reactions (57%). Thirty-three respondents (14%) added another non-listed answer such as being accepted as female while looking male, help navigating social changes at the workplace, building a new social network, more representation of butch lesbians, real life support and finding a community.

When looking at from whom the respondents received support while transitioning and detransitioning, it appears that the biggest source of help comes from online groups/forums/social media for both transition and detransition (65%). The support received from friends, partner(s) and family is a little higher for detransition (64%) than for transition (56%).

Only 8% of the respondents reported having received help from an LGBT+ organization while detransitioning, compared to 35% while transitioning.

Similarly, 5% reported having received help from a trans-specific organization while detransitioning, compared to 17% while transitioning.

A total of 29% reported having received support for their detransition from the medical professionals that helped them during their transition. In contrast, 38% sought support from a new therapist/doctor. A part of the sample reported not receiving help from anybody for transitioning (8%) and for detransitioning (11%) (see Figure 2).

Around half of the respondents (51%) reported having the feeling of not having been supported enough throughout their detransition, 31% said they did not know and 18% answered that they had received enough support.

Qualitative results

Two open-ended questions allowed participants to write more extensively about their needs and support in the questionnaire. The first one enabled the respondents to write about any additional need that they encountered while detransitioning, while the second asked about the support—or lack of—that they had received.

Additional comments about needs

Thirty-seven participants (16%) left various comments about specific needs that they experienced during their transition and detransition.

Several respondents expressed the need for different types of therapy and counseling for dealing with issues of dissociation, childhood sexual trauma, anorexia, relationship issues and body issues caused by irreversible gender affirming surgeries. A participant also mentioned the importance of help revolving around suicide prevention for those who need it.

Additionally, someone emphasized the need for therapists to validate the feelings of being harmed by transition that some detransitioners experience, rather than dismissing or opposing them. Similarly, another respondent expressed the need for non-judgmental medical practitioners. Someone else described the need for as much medical autonomy as possible and a total freedom from psychology and psychiatry. A participant also explained that she would have needed to know the health risks of chest binding before experiencing them.

Furthermore, two respondents highlighted the need to look into individual experiences and needs without forcing them into a rigid model of transition. Others wrote about the need for more information about detransition and a better general understanding of this phenomenon.

Lastly, a few female detransitioners expressed the need for being valued as a woman, for learning about feminist theories and for more gender-nonconforming role models.

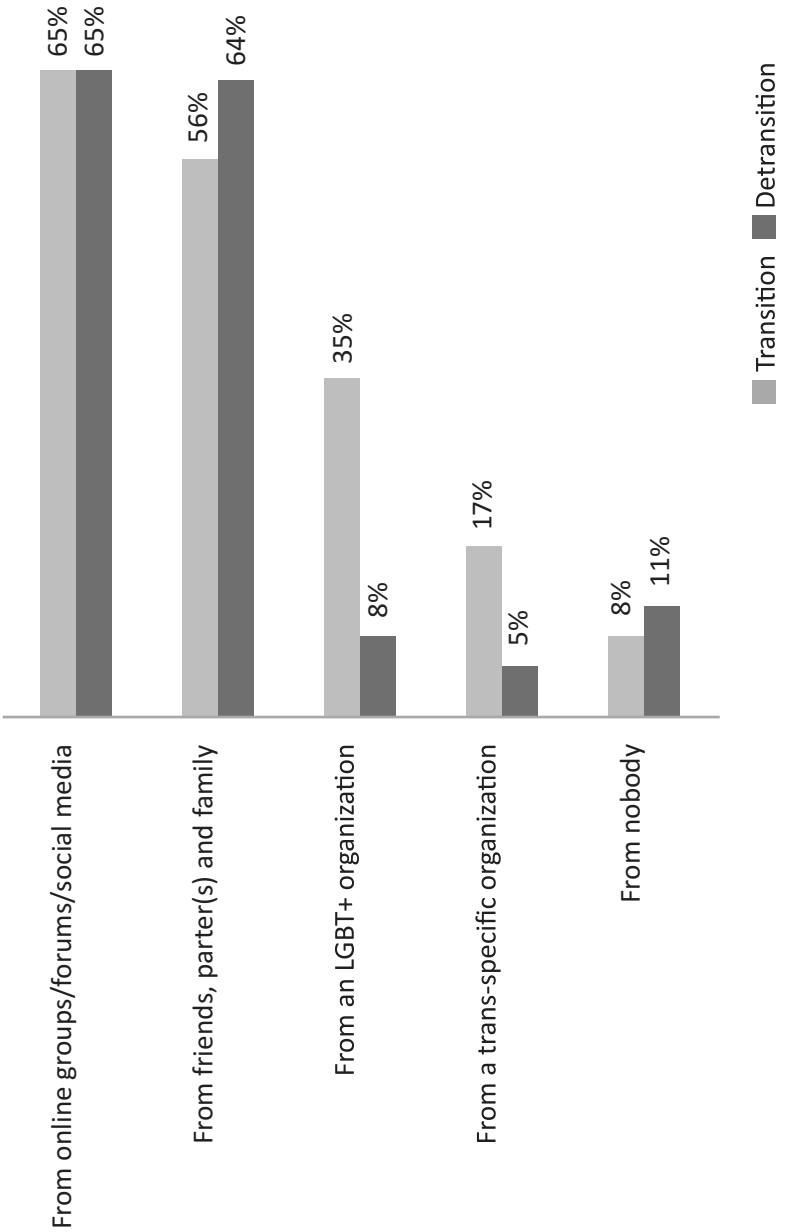

Figure 2. Comparison between transition and detransition support.

Additional comments about support

At the end of the questionnaire, a second open-ended question invited the participants to give further comments about the support—or lack of—that they had received during their detransition process.

A third of the participants (34%) answered this question, often with long and detailed accounts of their personal experiences with regard to this aspect. The most common themes identified were: loss of support from the LGBT community and friends (see Table 2), negative experiences with medical professionals (see Table 3), difficulty to find a detrans-friendly therapist and lack of offered alternatives to transitioning (see Table 4), as well as isolation and lack of overall support. Some gave more positive accounts of the support that they had received from their family, partners and friends and emphasized their important role.

A recurrent theme in the answers was a sense amongst respondents that it was very difficult to talk about detransition within LGBT+ spaces and with trans friends. Many expressed a feeling of rejection and loss of support in relation to their decision to detransition, which lead them to step away from LGBT+ groups and communities (see Table 2).

Whilst a minority reported positive experiences with medical professionals during their detransition, most participants expressed strong difficulties finding the help that they needed during their detransition process. Participants' own descriptions of the nature of these difficulties can be found in Table 3.

Another reported issue was the difficulty of finding a therapist willing and able to look at the factors behind gender dysphoria and to offer alternatives to transitioning. Some respondents highlighted the fact that they were

Table 2. Extracts about experiences of exclusion from LGBT+ communities.

"The LGBT+ community doesn't support detransitioners and I lost all LGBT+ friends I had because they deemed me transphobic/terfy, only non-LGBT+ friends supported me."
"Where I live detransitioners are seen bad for most of the LGBT community, so it's hard to talk about it with freedom."
"It is unacceptable that, at least in my experience, detransition is not something allowed to be talked about in LGBT spaces."
"Only lesbians and feminists helped me. The trans and queer community demonized me and ostracized me for my reidentification."
"I lost a lot of support and attracted a lot of hostility from trans people when I detransitioned socially. I also deal with a lot of people assuming that my dysphoria is gone entirely/cured because I have detransitioned socially, and decided not to go through with medical transition."
"Lgbt organizations don't want to talk about detransition. I did not feel welcome at lgbt events after I detransitioned."
"Telling my trans friends that I'm desisting is nearly impossible. The community is too toxic to allow any kind of discussion about alternatives to transition, sources of dysphoria beyond 'that's just who you are', or stories about detransitioners."
"I've been shunned by most of my trans identifying friends. I had to leave my old doctor, therapist and LGBT group out of shame and embarrassment."
"I have several de-trans friends whom had permanent body alterations they regretted that led to more dysphoria and eventually their suicides. Biggest factors were a lack of medical support and outright rejection from LGBT organisations/communities."
"I still have transgender friends who don't want me to talk about detransition. They're okay with me being detransitioned, but they don't want me to criticize transition or discuss the negative side effects of HRT."

Table 3. Extracts about negative medical experiences during detransition.

"I needed gender and transition experienced providers to assist with my medical detransition, but none of them seemed to understand or provide the type of care I needed, despite my self-advocacy. I got better care from providers outside of the LGBT and transgender specialty clinics."
"I still struggle to find a doctor who has knowledge of detransition and the effects HRT had on me/my best course of action since stopping."
"When I first brought up wanting to stop T to my doctor, they were very dismissive and condescending about it."
"My experience with transition left me with greatly diminished faith in medicine and zero faith in the mental health profession. I now avoid all doctors most of the time (unless I am convinced they are the only way to access a strongly evidence-based treatment or diagnostic tool for a condition which causes more suffering than doctors themselves- many do not) and totally avoid any contact with mental health professionals, and am much better off for it."
"As soon as I 'detransed' I was discharged from all gender services, despite asking for help in dealing with sex dysphoria should it arise again."
"I had no medical help from the doctor who prescribed me T, she wanted nothing to do with me."
"The team that transitioned you is not willing to help you detransition. You need new doctors."
"The medical team that helped me transition is helpful, but they are also causing a lot of hassle, which is very frustrating for me. Like for example they keep me stuck with my male sex marker for I don't know how long, and they don't believe I'm sure enough that I want to detransition, because they think I should have consistent 'reverse dysphoria' and mine kinda isn't so consistent."
"My hormone blocker implant is several years old and is only barely still functioning but they will not remove it. It's in my arm and I have no contact with the doctor because he shut down his business apparently."

Table 4. Extracts about the difficulty of finding a detrans-friendly therapist.

"It is very hard to find a therapist who won't tell you it's 'internalized transphobia' or that dealing with dysphoria in other ways is 'conversion therapy'."
"The only thing that comes to mind is one of the therapists I had, who pushed me not to detransition."
"Therapists are unprepared to handle the detrans narrative and some that I have seen since detransitioning have pushed the trans narrative. Some therapists couldn't tell the difference between being transgender and having internalized misogyny and homophobia."
"I could have benefitted from counseling but don't trust psychologists ideological bias."
"I struggled to find a therapist who supported questioning my trans identity and considering alternatives to transitioning; most only knew how to encourage transitioning and reinforced the harmful ideas that led to my wrongly identifying as FtM in the first place."
"I was doubtful that transition would help my dysphoria before beginning and was assured by multiple professionals that transition was The Solution and proven to work for everyone with dysphoria. A 'gender specialist' therapist flat-out told me that transitioning was the only method of reducing dysphoria that worked when I expressed my desperation for an alternate solution."
"The gender clinic I went to basically told me that the only way to deal with gender dysphoria was transitioning even when I told them I wanted to detransition."
"I struggled to find a therapist who supported questioning my trans identity and considering alternatives to transitioning; most only knew how to encourage transitioning and reinforced the harmful ideas that led to my wrongly identifying as FtM in the first place."
"The biggest issue for me was that when I did try to get support from a therapist or psychologist on entangling the actual reasons behind my dysphoria and how to deal with it, and deal with detransitioning, nobody had any clue or any experience, so they couldn't help me. Which made me even feel more lonely, and made detransitioning so much harder mentally than transitioning was."

cautious regarding the possible ideological bias or lack of knowledge of therapists.

Overall, most respondents explained that their detransition was a very isolating experience, during which they did not receive enough support. However, some participants emphasized the fact that the support that they received from their family, partners and friends, as well as online detrans groups and lesbian and feminist communities was extremely important and valuable to them.

Discussion

The present study was designed to better understand the needs of detransitioners, as well as the support—or lack of—that they are currently receiving. In order to do so, members of online detrans communities were recruited to answer a survey, in which questions were asked about their demographics, their transition and detransition experiences and the needs that they faced as well as the support that they received while detransitioning. In this section, I will discuss the results in relation to the main research question of the current study: What are the needs of detransitioners?

The sample surveyed appeared to be mostly female, young, from Western countries, with an experience of both social and medical transition and a high prevalence of certain comorbid conditions. The current study found that most detransitioners stopped transitioning before their mid-twenties, after an average of 4 years of transition. This observation is consistent with that made by Stella (2016) in her informal study on female detransitioners. The average transition age of the 203 respondents of her survey was 17.09 years, compared to 17.42 years in female detransitioners of the current study. The average detransition age of her sample was 21.09 years, compared to 22.22 years here.

Another finding of the current study was that a majority of the sample underwent hormone therapy (62% for females; 80% for males) and 45% of those who medically transitioned underwent gender affirming surgeries. This is likely to have implications in terms of the medical needs faced by this population. Close to half of the sample (49%) reported a need for receiving accurate information on stopping or changing hormone therapy, and almost a quarter (24%) reported the need for receiving help for complications related to surgeries or hormone therapy. The latter finding is concerning when looking at the negative medical experiences described by respondents in Table 3. Participants recounted situations in which their doctors either did not believe them, did not listen to them, refused them services, or simply did not have the required knowledge to help them during their detransition process. These experiences had a negative impact on some of the participants' trust in healthcare providers.

Similarly, the current study suggested that detransitioners have important psychological needs. This was made visible on the one hand through the fact that a majority of respondents (65%) reported the need for help in working on comorbid mental conditions related to gender dysphoria and in finding alternatives to medical transition. Other needs were reported by a majority of participants, such as learning to cope with feelings of regret (60%), learning to cope with the new physical and/or social changes related to detransitioning (53%) and learning to cope with internalized homophobia (52%). On the other hand, the high prevalence of comorbid conditions described in Table 1 might also be an indicator of important psychological needs. These results are similar

to that found by Hailey (2017) in her informal survey of comorbid mental health in detransitioned females. In her study, 77% reported a diagnosis of a depressive disorder (compared to 70% here), 74% of the sample reported a diagnosis of an anxiety disorder (compared to 63% here), 32% reported a diagnosis of PTSD (compared to 33% here) and 22% reported a diagnosis of an eating disorder (compared to 19% here). This is also very concerning information considering the descriptions made by detransitioners about the difficulty of finding a therapist willing or able to help them, and of finding alternative ways to deal with gender dysphoria after detransitioning (see Table 4).

The majority (84%) of the respondents reported having experienced both body and social gender dysphoria. Half of the sample (50%) later reported having decided to detransition due to the fact that their transition did not alleviate their gender dysphoria. Others (45%) reported having found alternative ways to deal with their gender dysphoria (see Figure 1). These results highlight the necessity to start looking into alternative solutions for treating gender dysphoria, in order to help those who did not find medical and/or social transition fulfilling.

In addition to that, 70% of the sample reported having realized that their gender dysphoria was related to other issues. Further research should be conducted in order to identify the ways in which other issues such as comorbid mental health conditions, trauma or internalized misogyny and homophobia possibly interact with gender dysphoria, and what can be done to alleviate them.

Furthermore, the high prevalence of autism spectrum condition (ASC) (20%) found in detransitioners in the current study, which is supported by Hailey (2017) findings (15%), also constitutes an interesting avenue for future research. Previous studies have provided evidence suggesting a co-occurrence of gender dysphoria and ASC (e.g., De Vries, Noens, Cohen-Kettenis, Van Berckelaer- Onnes, & Doreleijers, 2010; Glidden, Bouman, Jones, & Arcelus, 2016; VanderLaan et al., 2014; Van Der Miesen, Hurley, & De Vries, 2016; Zucker et al., 2017), which might explain the high number of detransitioners with an ASC diagnosis found in the current study.

In general, support given to detransitioners seems to be very poor at the moment, considering the fact that only 18% of the participants in the current study reported having received enough support during their detransition.

Based on the results of the current study, it appears that detransitioning is often accompanied by a break with LGBT+ communities. Only 13% of the participants reported having received support from an LGBT+ or trans-specific organization while detransitioning, compared to 51% while transitioning (see Figure 2). In addition to that, many respondents described experiences of outright rejection from LGBT+ spaces due to their decision to detransition (see Table 2). Looking at studies showing the positive role

of peer support and trans community connectedness on the mental health of its members (Johnson & Rogers, 2019; Pflum, Testa, Balsam, Goldblum, & Bongar, 2015; Sherman, Clark, Robinson, Noorani, & Poteat, 2020), it seems reasonable to suspect that this loss of support experienced by detransitioners must have serious implications on their psychological well-being.

Fortunately, the current study shows that detransitioners have access to other sources of support, online (groups, forums, social media) and in their social surroundings (family, partners and friends) (see Figure 2). Online groups and websites for detransitioners seem to be particularly important in light of the social needs expressed by the respondents of the current study. An overwhelming majority of respondents reported the need for hearing about other detransition stories (87%) and for getting in contact with other detransitioners (76%). Detransitioners need platforms and spaces where they can connect with each other and build a community. This point is best illustrated by the following account of one participant: "I found the peer support I received through other detransitioned women to be totally adequate and feel I benefited substantially from learning how to exist without institutional validation."

Conclusion

The aim of the present research was to examine detransitioners' needs and support. The four categories of needs (psychological, medical, legal and social) that were created for sake of clarity in the survey were a simplification of the real complexity of the experiences made by detransitioners and they have their limitations. Nonetheless, these categories enabled the current study to uncover the fact that most detransitioners could benefit from some form of counseling and in particular when it comes to psychological support on matters such as gender dysphoria, comorbid conditions, feelings of regret, social/physical changes and internalized homophobic or sexist prejudices. Medical support was also found to be needed by many, in order to address concerns related to stopping/changing hormone therapy, surgery/treatment complications and access to reversal interventions. Furthermore, the current study has shown that detransitioners need spaces to hear about other detransition stories and to exchange with each other.

Unfortunately, the support that detransitioners are receiving in order to fulfill these needs appears to be very poor at the moment. Participants described strong difficulties with medical and mental health systems, as well as experiences of outright rejection from the LGBT+ community. Many respondents have expressed the wish to find alternative treatments to deal with their gender dysphoria but reported that it was impossible to talk about it within LGBT+ spaces and in the medical sphere.

These accounts are concerning and they show the urgency to increase awareness and reduce hostility around the topic of detransition among healthcare providers and members of the LGBT+ community in order to address the specific needs of detransitioners.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Appendix.

Full Questionnaire

(1) How old are you?
(2) What country are you living in?
(3) What sex were you assigned at birth?
- Female
- Male
- Other:

(4) How do you see yourself now? (Tick all that apply)
- Woman
- Man
- Trans man
- Trans woman
- Female detransitioner
- Male detransitioner
- Non binary
- Other:

(5) Did you transition socially and/or medically and then stopped?
- Yes, both
- Only socially
- No

(6) Did you experience body dysphoria and/or social dysphoria? (Body dysphoria = strong desire to have sex characteristics of the opposite sex/rejection of your own sex; Social dysphoria = strong desire to be seen and treated as being of a different gender)
- Yes, both
- Only body dysphoria
- Only social dysphoria
- No

(7) Who helped you starting your social/medical transition? (Tick all that apply)
- A medical team specialized in transition
- An LGBT+ organization
- A trans-specific organization
- A therapist/doctor
- Online groups/forums/social media
- Friends, partner(s) and family
- Nobody
- Other:

(8) If you transitioned medically, how long were you in therapy before getting any hormones or surgeries? (in months; write 0 if none)

(9) During your transition, did you undergo some of the following interventions/treatments? (Tick all that apply)
- Hormone blockers
- Feminizing hormone treatment
- Masculinizing hormone treatment
- Gender affirming surgery(ies)
- No

(10) Do you feel like you were properly informed about the health implications of these treatments/interventions before undergoing them?
- Yes
- Partly
- No
- I am not sure

(11) What were the reasons that made you stop transitioning/detransition? (Tick all that apply)
- Health concerns
- Change in political views
- Transition did not help with my dysphoria
- Lack of support from social surroundings
- Discrimination
- Financial concerns
- Dysphoria resolved itself over time
- Unhappy with the physical changes
- Unhappy with the social changes
- Comorbid mental health issues related to dysphoria solved
- Realized that my gender dysphoria was related to other issues
- Found alternatives to deal with dysphoria
- Other:

(12) Were you diagnosed with or do you suspect having any of the following conditions?

	Diagnosed	Suspected	No
Attention Deficit (Hyperactive) Disorder			
Autism Spectrum Condition			
Anxiety Disorders			
Depressive Disorders			
Dissociative Identity Disorder			
Eating Disorders			
Obsessive Compulsive Disorder			
Polycystic Ovary Syndrome			
Post Traumatic Stress Disorder			
Personality Disorders			
Schyzo-spectrum Disorder			

(13) If you transitioned socially, at what age did you start?
(14) If you transitioned medically, at what age did you start?
(15) At what age did you start detransitioning/stop transitioning?
(16) What are the medical needs that you had while detransitioning/stopping your transition? (Tick all that apply)
- Receiving accurate information on stopping/changing hormonal treatment
- Receiving information and access to reversal surgeries/procedures
- Receiving help for complications related to surgeries or hormonal treatment
- None
- Other:

(17) What are the psychological needs that you had while detransitioning/stopping your transition? (Tick all that apply)
- Learning to cope with gender dysphoria; finding alternatives to medical transition
- Learning to cope with the new physical and/or social changes related to detransitioning
- Learning to cope with feelings of regret
- Learning to cope with internalized homophobia
- Working on comorbid mental issues related to gender dysphoria
- None
- Other:

(18) What are the legal needs that you had while detransitioning/stopping your transition? (Tick all that apply)
- Changing back legal gender/sex marker and/or name
- Legal advice and support to take legal action over medical malpractice
- None
- Other:

(19) What are the social needs that you had while detransitioning/stopping your transition? (Tick all that apply)
- Getting in contact with other detransitioners
- Receiving support to come out and deal with negative reactions
- Hearing about other detransition stories
- None
- Other:

(20) Is there any other need that you would like to mention?

(21) Which of these needs did you get support for?

	Full support	Partly	Not at all	Not needed
Medical needs				
Psychological needs				
Legal needs				
Social needs				

(22) From whom? (Tick all that apply)
- The medical team that helped me transition
- An LGBT+ organization
- A trans specific organization
- The therapist/doctor who supported me through my transition
- A new therapist/doctor
- Online groups/forums/social media
- Friends, partner(s) and family
- Nobody
- Other:

(23) Do you feel like you have received enough support throughout your detransition process overall?
- Yes
- No
- I don't know

(24) If you have any comment concerning the support/lack of support you received during your detransition, you can write it here.

DOC. 69-23

Young Adult Psychological Outcome After Puberty Suppression and Gender Reassignment

WHAT'S KNOWN ON THIS SUBJECT: Puberty suppression has rapidly become part of the standard clinical management protocols for transgender adolescents. To date, there is only limited evidence for the long-term effectiveness of this approach after gender reassignment (cross-sex hormones and surgery).

WHAT THIS STUDY ADDS: In young adulthood, gender dysphoria had resolved, psychological functioning had steadily improved, and well-being was comparable to same-age peers. The clinical protocol including puberty suppression had provided these formerly gender-dysphoric youth the opportunity to develop into well-functioning young adults.

abstract

BACKGROUND: In recent years, puberty suppression by means of gonadotropin-releasing hormone analogs has become accepted in clinical management of adolescents who have gender dysphoria (GD). The current study is the first longer-term longitudinal evaluation of the effectiveness of this approach.

METHODS: A total of 55 young transgender adults (22 transwomen and 33 transmen) who had received puberty suppression during adolescence were assessed 3 times: before the start of puberty suppression (mean age, 13.6 years), when cross-sex hormones were introduced (mean age, 16.7 years), and at least 1 year after gender reassignment surgery (mean age, 20.7 years). Psychological functioning (GD, body image, global functioning, depression, anxiety, emotional and behavioral problems) and objective (social and educational/professional functioning) and subjective (quality of life, satisfaction with life and happiness) well-being were investigated.

RESULTS: After gender reassignment, in young adulthood, the GD was alleviated and psychological functioning had steadily improved. Well-being was similar to or better than same-age young adults from the general population. Improvements in psychological functioning were positively correlated with postsurgical subjective well-being.

CONCLUSIONS: A clinical protocol of a multidisciplinary team with mental health professionals, physicians, and surgeons, including puberty suppression, followed by cross-sex hormones and gender reassignment surgery, provides gender dysphoric youth who seek gender reassignment from early puberty on, the opportunity to develop into well-functioning young adults. *Pediatrics* 2014;134:696–704

AUTHORS: Annelou L.C. de Vries, MD, PhD,[a] Jenifer K. McGuire, PhD, MPH,[b] Thomas D. Steensma, PhD,[a] Eva C.F. Wagenaar, MD,[a] Theo A.H. Doreleijers, MD, PhD,[a] and Peggy T. Cohen-Kettenis, PhD[a]

[a]Center of Expertise on Gender Dysphoria, VU University Medical Center, Amsterdam, Netherlands; and [b]Department of Human Development, Washington State University, Pullman, Washington

KEY WORDS
gender dysphoria, transgenderism, adolescents, psychological functioning, puberty suppression, longitudinal outcomes

ABBREVIATIONS
ABCL—Adult Behavior Checklist
ASR—Adult Self-Report
BDI—Beck Depression Inventory
BIS—Body Image Scale
CBCL—Child Behavior Checklist
CGAS—Children's Global Assessment Scale
CSH—cross-sex hormones
GD—gender dysphoria
GnRHa—gonadotropin-releasing hormone analogs
GRS—gender reassignment surgery
SHS—Subjective Happiness Scale
STAI—Spielberger's Trait Anxiety Scale
SWLS—Satisfaction With Life Scale
TPI—Spielberger's Trait Anger Scale
UGDS—Utrecht Gender Dysphoria Scale
YSR—Youth Self-Report

Dr de Vries conceptualized the study, clinically assessed the participants, drafted the initial manuscript, and reviewed and revised the manuscript; Dr McGuire conceptualized the study, planned and carried out the analyses, assisted in drafting the initial manuscript, and reviewed and revised the manuscript; Dr Steensma conceptualized the study, coordinated and supervised data collection, and reviewed and revised the manuscript; Dr Wagenaar coordinated and invited participants for assessments and reviewed and revised the manuscript; Drs Doreleijers and Cohen-Kettenis conceptualized the study and reviewed and revised the manuscript; and all authors approved the final manuscript as submitted.

Dr McGuire's current affiliation is Department of Family Social Science, College of Education and Human Development, St Paul, Minnesota.

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Address correspondence to Annelou L.C. de Vries, MD, PhD, Child and Adolescent Psychiatrist, Center of Expertise on Gender Dysphoria, VU University Medical Center, PO Box 7057, 1007 MB Amsterdam, Netherlands. E-mail: alc.devries@vumc.nl

(Continued on last page)

Transgender adolescents experience an incongruence between their assigned gender and their experienced gender and may meet the Diagnostic and Statistical Manual of Mental Disorders 5 criteria for gender dysphoria (GD).[1] Fifteen years ago, pubertal delay was introduced as an aid in the treatment of a gender dysphoric adolescent.[2] Although not without debate, blocking pubertal development has rapidly become more widely available[3–7] and is now part of the clinical management guidelines for GD.[8–12]

Gonadotropin-releasing hormone analogs (GnRHa) are a putatively fully reversible[13] medical intervention intended to relieve distress that gender dysphoric adolescents experience when their secondary sex characteristics develop. A protocol designed by Cohen-Kettenis and Delemarre-van de Waal[14] (sometimes referred to as "the Dutch model")[4,7] considers adolescents, after a comprehensive psychological evaluation with many sessions over a longer period of time, eligible for puberty suppression, cross-sex hormones (CSH), and gender reassignment surgery (GRS) at the respective ages of 12, 16, and 18 years when there is a history of GD; no psychosocial problems interfering with assessment or treatment, for example, treatment might be postponed because of continuous moving from 1 institution to another or repeated psychiatric crises; adequate family or other support; and good comprehension of the impact of medical interventions.[12] Puberty suppression is only started after the adolescent actually enters the first stages of puberty (Tanner stages 2–3), because although in most prepubertal children GD will desist, onset of puberty serves as a critical diagnostic stage, because the likelihood that GD will persist into adulthood is much higher in adolescence than in the case of childhood GD.[15,16]

Despite the apparent usefulness of puberty suppression, there is only limited evidence available about the effectiveness of this approach. In the first cohort of adolescents who received GnRHa, we demonstrated an improvement in several domains of psychological functioning after, on average, 2 years of puberty suppression while GD remained unchanged.[16] The current study is a longer-term evaluation of the same cohort, on average, 6 years after their initial presentation at the gender identity clinic. This time, we were not only interested in psychological functioning and GD, but added as important outcome measures objective and subjective well-being (often referred to as "quality of life"), that is, the individuals' social life circumstances and their perceptions of satisfaction with life and happiness.[17–19] After all, treatment cannot be considered a success if GD resolves without young adults reporting they are healthy, content with their lives, and in a position to make a good start with their adult professional and personal lives.[20] Because various studies show that transgender youth may present with psychosocial problems,[21,22] a clinical approach that includes both medical (puberty suppression) and mental health support (regular sessions, treatment when necessary, see Cohen-Kettenis et al[12]) aims to improve long-term well-being in all respects.

In the present longitudinal study, 3 primary research questions are addressed. Do gender dysphoric youth improve over time with medical intervention consisting of GnRHa, CSH, and GRS? After gender reassignment, how satisfied are young adults with their treatment and how do they evaluate their objective and subjective well-being? Finally, do young people who report relatively greater gains in psychological functioning also report a higher subjective well-being after gender reassignment?

METHODS

Participants and Procedure

Participants included 55 young adults (22 transwomen [natal males who have a female gender identity] and 33 transmen [natal females who have a male gender identity]) of the first cohort of 70 adolescents who had GD who were prescribed puberty suppression at the Center of Expertise on Gender Dysphoria of the VU University Medical Center and continued with GRS between 2004 and 2011. These adolescents belonged to a group of 196 consecutively referred adolescents between 2000 and 2008, of whom 140 had been considered eligible for medical intervention and 111 were prescribed puberty suppression (see de Vries et al[16]). The young adults were invited between 2008 and 2012, when they were at least 1 year past their GRS (vaginoplasty for transwomen, mastectomy and hysterectomy with ovariectomy for transmen; many transmen chose not to undergo a phalloplasty or were on a long waiting list). Nonparticipation (n = 15, 11 transwomen and 4 transmen) was attributable to not being 1 year postsurgical yet (n = 6), refusal (n = 2), failure to return questionnaires (n = 2), being medically not eligible (eg, uncontrolled diabetes, morbid obesity) for surgery (n = 3), dropping out of care (n = 1), and 1 transfemale died after her vaginoplasty owing to a postsurgical necrotizing fasciitis. Between the 55 participants and the 15 nonparticipating individuals, Student's t tests revealed no significant differences on any of the pretreatment variables. A similar lack of differences was found between the 40 participants who had complete data and the 15 who were missing some data.

Participants were assessed 3 times: pre-treatment (T0, at intake), during treatment (T1, at initiation of CSH), and post-treatment (T2, 1 year after GRS). See Table 1 for age at the different time points. The VU University Medical Center medical ethics committee approved the study, and all participants gave informed consent.

TABLE 1 Age at Different Treatment Milestones and Intelligence by Gender

Variable	All Participants[a] (*N* = 55)		Transwomen (Natal Males) (*N* = 22)	Transmen (Natal Females) (*N* = 33)
Age, y	Mean (SD)	Range	Mean (SD)	Mean (SD)
At assessment PreT	13.6 (1.9)	11.1–17.0	13.6 (1.8)	13.7 (2.0)
At start of GnRHa	14.8 (1.8)	11.5–18.5	14.8 (2.0)	14.9 (1.9)
At start of CSH	16.7 (1.1)	13.9–19.0	16.5 (1.3)	16.8 (1.0)
At GRS	19.2 (0.9)	18.0–21.3	19.6 (0.9)	19.0 (0.8)
At assessment PostT	20.7 (1.0)	19.5–22.8	21.0 (1.1)	20.5 (0.8)
Full-scale intelligence[b]	99.0 (14.3)	70–128	97.8 (14.2)	100.4 (14.3)

PostT, post-treatment; PreT, pre-treatment.

[a] Comparisons between those who had complete data (*n* = 40) and those who had missing data on the CBCL/ABCL (*n* = 15) reveal no significant differences between the groups in age at any point in the study or in natal sex.

[b] WISC-R, the WISC-III, or the WAIS-III at first assessment, depending on age and time.[45–47]

Measures

Time was the predominate independent variable. Other demographic characteristics were incorporated in some models, including, age, natal sex, Full Scale Intelligence, and parent marital status; where significantly different they are reported.

Gender Dysphoria/Body Image

There was 1 indicator measuring GD (Utrecht Gender Dysphoria Scale [UGDS]) and 3 indicators measuring body image (Body Image Scale [BIS] with primary, secondary, and neutral subscales). Higher UGDS (12 items, 1–5 range, total score ranging from 12–60) total scores indicate higher levels of GD, for example, "I feel a continuous desire to be treated as a man/woman."[23] There are separate versions of the UGDS for males and females with mostly different items, permitting no gender difference analyses. BIS (30 items, 1–5 range) higher scores indicate more dissatisfaction with primary sex characteristics (important gender-defining body characteristics, eg, genitals, breasts), secondary sex characteristics (less obvious gender-defining features, eg, hips, body hair), and neutral (hormonally unresponsive) body characteristics (eg, face, height).[24] The male and the female BIS are identical except for the sexual body parts. The UGDS and the BIS of the natal gender were administered at T0 and T1. At T1, we chose the UGDS of the assigned gender, because no physical changes had occurred yet and some were still treated as their assigned gender. This way, however, decreased GD caused by social transitioning was not measured. At T2 young adults filled out the versions of their affirmed gender.

Psychological Functioning

There were 10 indicators assessing psychological functioning. To assess global functioning, the Children's Global Assessment Scale (CGAS) was used.[25] The Beck Depression Inventory (BDI; 21 items, 0–3 range) indicates presence and severity of depressive symptoms.[26] Spielberger's Trait Anger (TPI) and Spielberger's Trait Anxiety (STAI; 10 and 20 items, respectively, 1–4 range) scales of the State-Trait Personality Inventory were administered to assess the tendency to respond with anxiety or anger, respectively, to a threatening or annoying situation.[27,28]

Behavioral and emotional problems were assessed by the total, internalizing, and externalizing T scores as well as clinical range scores for these 3 indices (T score >63) of the Child/Adult Behavior Checklist (CBCL at T0 and T1, ABCL at T2), the Youth/Adult Self-Report (YSR at T0 and T1, ASR at T2).[29–31] Items referring to GD in the CBCL/YSR and ABCL/ASR were scored as 0 (for more explanation, see Cohen-Kettenis et al[32]).

Objective and Subjective Well-Being (T2 Only)

A self-constructed questionnaire was used to ask the young adults about their current life circumstances, such as living conditions, school and employment, and social support (objective well-being), and satisfaction with treatment (subjective well-being). Three instruments further assessed subjective well-being. To measure quality of life, the WHOQOL-BREF (quality of life measure developed by the World Health Organization) was administered (24 items, 4 domains: Physical Health, Psychological Health, Social Relationships, and Environment, 1–5 range with higher scores indicating better quality of life).[17] The Satisfaction With Life Scale (SWLS, 5 items, 5–35 range, 20 being neutral) was used to assess life satisfaction.[18] Higher scores on the Subjective Happiness Scale (SHS, 4 items, 7-point Likert scale, average score 1–7) reflect greater happiness.[19]

Data Analyses

General Linear Models examined the repeated measures with an analysis of variance-based model, incorporating continuous and categorical predictors, and correcting for the unbalanced cell sizes. Linear and quadratic effects of the 14 indicators across 3 time points, with time as the within-subjects factor, and sex as a between-subjects factor in a second set of analyses are reported in Tables 2 and 3 and Fig 1. A linear effect signifies an overall change across T0 to T2. A quadratic effect signifies that the change was not continuous, such as when an indicator does not improve from T0 to T1 but improves from T1 to T2. It is possible to have both a significant linear and quadratic effect on the same

TABLE 2 Gender Dysphoria and Body Image of Adolescents at Intake (T0), While on Puberty Suppression (T1), and After Gender Reassignment (T2)

	N[a]	T0	T1	T2	T0–T2	Time	Time × Sex
					t test	Linear Effect Quadratic Effect	Linear Effect Quadratic Effect
		Mean (SD)	Mean (SD)	Mean (SD)	*P*	*P*	*P*
UGDS	33	53.51 (8.29)	54.39 (7.70)	15.81 (2.78)	<.001		
MtF	11	47.07 (11.05)	48.95 (10.80)	17.27 (2.57)	<.001	<.001	n/a
						<.001	
FtM	22	56.74 (3.74)	57.11 (3.40)	15.08 (2.64)	<.001	<.001	n/a
						<.001	
Body Image (BIS)							
Primary sex characteristics	45	4.13 (0.59)	4.05 (0.60)	2.59 (0.82)	<.001	<.001	.01
						<.001	.45
MtF	17	4.03 (0.68)	3.82 (0.56)	2.07 (0.74)	<.001		
FtM	28	4.18 (0.53)	4.13 (0.60)	2.89 (0.71)	<.001		
Secondary sex characteristics	45	2.73 (0.72)	2.86 (0.67)	2.27 (0.56)	<.001	<.001	.10
						<.001	<.001
MtF	17	2.63 (0.60)	2.34 (0.68)	1.93 (0.63)	<.001		
FtM	28	2.80 (0.72)	3.18 (0.43)	2.48 (0.40)	.05		
Neutral body characteristics	45	2.35 (0.68)	2.49 (0.53)	2.23 (0.49)	.29	.29	.007
						.01	.01
MtF	17	2.57 (0.70)	2.29 (0.50)	2.09 (0.56)	.014		
FtM	28	2.21 (0.64)	2.61 (0.52)	2.32 (0.44)	.40		

FtM, female to male transgender; MtF, male to female transgender; n/a, not applicable.
[a] Participants who had complete data at all 3 waves were included. Some assessments were added to the study later, yielding fewer total participants for those scales.

indicator. Other potential between-subjects factors (age, total IQ, parental marital status) were examined but excluded owing to a lack of relationship with the 14 indicators at T0. The 1 exception, age predicting secondary sex characteristics, is described below in the findings. We compared T2 sample means to population norms for subjective well-being using 1-sample *t* tests from previously published validation studies. Finally, we examined T2 subjective well-being correlations with residual change scores from T0 to T2 on the 14 indicators (an indicator of who improved relatively more or less over time).

All measures used were self-reported, except the CGAS (attending clinician) and the CBCL/ASR (parents). Each participant was given all measures at each of 3 assessments. Numbers varied across indicators owing to the later inclusion of the YSR, CGAS, BDI, TPI, and STAI, yielding 8 persons who had missing data at T0 and a clinician error yielding missing data at T1 for 10 participants on the UGDS. Dutch versions were used (see de Vries et al[16]).

RESULTS

Gender Dysphoria and Body Satisfaction

Figure 1 and Table 2 show that GD and body image difficulties persisted through puberty suppression (at T0 and T1) and remitted after the administration of CSH and GRS (at T2) (significant linear effects in 3 of 4 indicators, and significant quadratic effects in all indicators). Time by sex interactions revealed that transwomen reported more satisfaction over time with primary sex characteristics than transmen and a continuous improvement in satisfaction with secondary and neutral sex characteristics. Transmen reported more dissatisfaction with secondary and neutral sex characteristics at T1 than T0, but improvement in both from T1 to T2. Age was a significant covariate with secondary sex characteristics (the only significant demographic covariate with any outcome indicator in the study), indicating that older individuals were more dissatisfied at T0, but the age gap in body satisfaction narrowed over time ($F(1, 42) = 8.18$; $P < .01$).

Psychological Functioning

As presented in Table 3, significant linear effects showed improvement over time in global functioning (CGAS), CBCL/ABCL total, internalizing and externalizing *T* scores, and YSR/ASR total and internalizing *T* scores. Quadratic effects revealed decreases from T0 to T1 followed by increases from T1 to T2 in depression and YSR/ASR internalizing *T* scores. Quadratic trends revealed decreases from T0 to T1, followed by increases from T1 to T2 in depression and YSR/ASR internalizing *T* scores. For all CBCL/ABCL and YSR/ASR indicators except YSR/ASR externalizing, the percentage in the clinical range dropped significantly (McNemar's test, *P* value <0.05) from T0 to T1, from T0 to T2, or from T1 to T2.

Over time, transmen showed reduced anger, anxiety, and CBCL/ABCL externalizing *T* scores, whereas transwomen showed stable or slightly more symptomatology on these measures. Transwomen improved in CBCL/ABCL total *T* scores in a quadratic fashion (all the improvement between T1 and T2),

TABLE 3 Psychological Functioning of Adolescents at Intake (T0), While on Puberty Suppression (T1), and After Gender Reassignment (T2)

	N[a]	T0	T1	T2	T0–T2	Time	Time × Sex
					t test	Linear Effect Quadratic Effect	Linear Effect Quadratic Effect
		Mean (SD)	Mean (SD)	Mean (SD)	*P*	*P*	*P*
Global functioning (CGAS)	32	71.13 (10.46)	74.81 (9.86)	79.94 (11.56)	<.001	<.001	.89
						.61	.68
MtF	15	74.33 (7.53)	78.20 (9.56)	82.40 (8.28)	<.001		
FtM	17	67.65 (11.87)	70.65 (9.89)	76.29 (14.48)	.02		
Depression (BDI)	32	7.89 (7.52)	4.10 (6.17)	5.44 (8.40)	.21	.23	.66
						.04	.49
MtF	12	4.73 (4.20)	2.25 (3.54)	3.38 (4.40)	.12		
FtM	20	10.09 (8.34)	5.05 (7.08)	6.95 (9.83)	.32		
Anger (TPI)	32	17.55 (5.72)	17.22 (5.61)	16.01 (5.28)	.20	.15	.04
						.52	.12
MtF	12	14.17 (3.01)	14.00 (3.36)	5.58 (3.92)	.18		
FtM	20	19.55 (5.96)	19.25 (5.69)	16.56 (6.06)	.05		
Anxiety (STAI)	32	39.57 (10.53)	37.52 (9.87)	37.61 (10.39)	.45	.42	.05
						.47	.52
MtF	12	31.87 (7.42)	31.71 (8.36)	35.83 (10.22)	.14		
FtM	20	44.41 (9.06)	41.59 (9.03)	39.20 (10.53)	.12		
CBCL–ABCL							
Total *T* score	40	60.20 (12.66)	54.70 (11.58)	48.10 (9.30)	<.001	<.001	.25
% Clinical		38_x	20_y	5_y		.68	.03
MtF	15	57.40 (12.76)	49.67 (12.29)	48.13 (12.58)	.002		
FtM	25	61.88 (12.56)	57.72 (10.23)	48.08 (6.95)	<.001		
Int *T* score	40	60.83 (12.36)	54.42 (10.58)	50.45 (10.04)	<.001	<.001	.91
% Clinical		30_x	12.5_y	10_y		.42	.33
MtF	15	59.40 (10.03)	50.93 (11.15)	48.73 (12.61)	<.001		
FtM	25	61.68 (13.70)	56.52 (9.86)	51.48 (8.25)	<.001		
Ext *T* score	40	57.85 (13.73)	53.85 (12.77)	47.85 (8.59)	<.001	<.001	.19
% Clinical		40_x	25_x	2.5_y		.43	.12
MtF	15	52.53 (14.11)	47.87 (12.07)	46.33 (10.95)	.10		
FtM	25	61.04 (12.71)	57.44 (12.01)	48.76 (6.89)	<.001		
YSR-ASR							
Total *T* score	43	54.72 (12.08)	49.16 (11.16)	48.53 (9.46)	.005	.005	.28
% Clinical		30_x	14_{xy}	7_y		.07	.75
MtF	17	50.65 (12.19)	45.94 (12.24)	47.24 (12.28)	.28		
FtM	26	57.38 (11.47)	51.27 (10.08)	49.38 (7.21)	.01		
Int *T* score	43	55.47 (13.08)	48.65 (12.33)	50.07 (11.15)	.03	.03	.87
% Clinical		30_x	9.3_y	11.6_{xy}		.008	.73
MtF	17	54.00 (12.31)	47.59 (14.26)	48.12 (12.54)	.04		
FtM	26	56.42 (13.86)	49.35 (11.13)	51.35 (10.19)	.17		
Ext *T* score	43	52.77 (12.47)	49.44 (9.59)	49.44 (9.37)	.14	.14	.005
% Clinical		21_x	11.6_x	7_x		.09	.14
MtF	17	46.00 (11.58)	44.71 (9.53)	50.24 (11.18)	.17		
FtM	26	57.16 (11.14)	52.54 (8.43)	48.92 (8.18)	.006		

FtM, female to male transgender; MtF, male to female transgender.

$_{xy}$ Percent clinical range, shared subscripts indicate no significant difference in values. In no case was an increase in percent in the clinical range significant from 1 time point to any other time point, indicating an overall decline or stability of clinical symptoms over time.

[a] Participants who had complete data at all 3 waves were included. Some assessments were added to the study later, yielding fewer total participants for those scales.

whereas transmen improved steadily across the 3 time points (linear effect only).

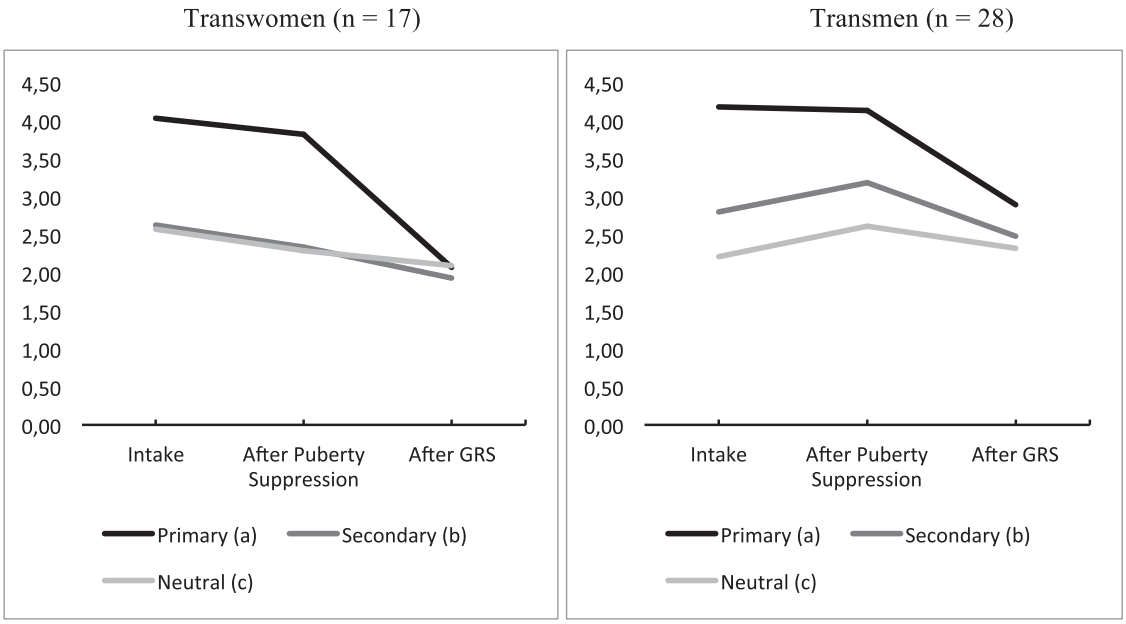
Objective Well-Being

At T2, the participants were vocationally similar to the Dutch population except they were slightly more likely to live with parents (67% vs 63%), and more likely, when studying, to be pursuing higher education (58% vs 31%).[33]

Families were supportive of the transitioning process: 95% of mothers, 80% of fathers, and 87% of siblings. Most (79%) young adults reported having 3 or more friends, were satisfied with their male (82%) and female peers (88%), and almost all (95%) had received support from friends regarding their gender reassignment. After their GRS, many participants (89%) reported having been never or seldom called names or harassed. The majority (71%) had experienced social transitioning as easy.

Subjective Well-Being

None of the participants reported regret during puberty suppression, CSH



Eta Squared for Linear and Quadratic Effects

(a) Primary sex characteristics
Time: .79 ($P < .001$), .66 ($P < .001$),
Time × sex: .14 ($P = .01$), .01 ($P = .45$),

(b) Secondary sex characteristics
Time: .31($P < .001$), .30 ($P < .001$),
Time × sex: .06 ($P = .10$), .22 ($P < .001$)

(c) Neutral body characteristics
Time: .07($P < .001$), .09 ($P = .29$)
Time × sex: .16 ($P = .007$), .15 ($P = .01$)

FIGURE 1
BIS[23] for transwomen and transmen at T0 (pretreatment, at intake), T1 (during treatment, at initiation of cross-gender hormones), and T2 (post-treatment, 1 year after GRS).

treatment, or after GRS. Satisfaction with appearance in the new gender was high, and at T2 no one reported being treated by others as someone of their assigned gender. All young adults reported they were very or fairly satisfied with their surgeries.

Mean scores on WHOQOL-BREF, the SWLS, and the SHS are presented in Table 4, together with scores from large validation and reliability studies of these measures,[17,19,34] revealing similar scores in all areas except WHOQOL-Environment subdomain, which was higher for the participants than the norm. There were some differences across gender; transwomen scored higher than transmen on the SWLS (mean = 27.7; SD = 5.0 vs mean = 23.2; SD = 6.0; t (52) = 2.82; $P < .01$) and on the psychological subdomain of the WHOQOL (mean = 15.77; SD = 2.0 vs mean = 13.92; SD = 2.5; t (53) = 2.95; $P < .01$).

Correlations With Residual Change Scores

The residual change scores of secondary sex characteristics, global functioning, depression, anger, anxiety, and YSR total, internalizing and externalizing from T0 to T2, were significantly correlated with the 6 T2 quality of life indicators. Most correlation coefficients were within the moderate to large magnitude (eg, 0.30–0.60), except depression, which was highly correlated (0.60–0.80) (see Table 5).

DISCUSSION

Results of this first long-term evaluation of puberty suppression among transgender adolescents after CSH treatment and GRS indicate that not only was GD resolved, but well-being was in many respects comparable to peers.

The effectiveness of CSH and GRS for the treatment of GD in adolescents is in line with findings in adult transsexuals.[35,36] Whereas some studies show that poor surgical results are a determinant of postoperative psychopathology and of dissatisfaction and regret,[37,38] all young adults in this study were generally satisfied with their physical appearance and none regretted treatment. Puberty suppression had caused their bodies to

TABLE 4 Subjective Well-Being: Quality of Life, Satisfaction With Life, and Subjective Happiness Mean Scores With Scores From Validation Studies

	N	Mean (SD)	Range	Validation Studies Scores Mean (SD)	Comparison *P*
WHOQOL[a] Physical	55	15.22 (2.49)	8.6–20.0	15.0 (2.9)[b]	.56
WHOQOL Psychological	55	14.66 (2.44)	6.67–20.0	14.3 (2.8)[b]	.24
WHOQOL Social Relations	55	14.91 (2.35)	9.3–20.00	14.5 (3.4)[b]	.18
WHOQOL Environment	55	15.47 (2.06)	10.5–20.00	13.7 (2.6)[b]	<.001
SWLS	54	24.98 (6.0)	9.0–35.0	26.18 (5.7)[c]	.16
SHS	54	4.73 (0.77)	2.75–6.0	4.89 (1.1)[d]	.17

[a] WHOQOL, Bref, Skevington et al.[16]
[b] International field trial, ages 21 to 30 years, Skevington et al.[16]
[c] Dutch young adults, Arindell et al.[33]
[d] US Public College Students, Lyubomirsky.[18]

not (further) develop contrary to their experienced gender.

Psychological functioning improved steadily over time, resulting in rates of clinical problems that are indistinguishable from general population samples (eg, percent in the clinical range dropped from 30% to 7% on the YSR/ASR[30]) and quality of life, satisfaction with life, and subjective happiness comparable to same-age peers.[17,19,34] Apparently the clinical protocol of a multidisciplinary team with mental health professionals, physicians, and surgeons gave these formerly gender dysphoric youth the opportunity to develop into well-functioning young adults. These individuals, of whom an even higher percentage than the general population were pursuing higher education, seem different from the transgender youth in community samples with high rates of mental health disorders, suicidality and self-harming behavior, and poor access to health services.[21,22,39,40]

In this study, young adults who experienced relatively greater improvements in psychological functioning were more likely to also report higher levels of subjective postsurgical well-being. This finding suggests value to the protocol that involves monitoring the adolescents' functioning, physically and psychologically, over many years, and providing more support whenever necessary.

This clinic-referred sample perceived the Environmental subdomain (with items like "access to health and social care" and "physical safety and security") of the WHOQOL-BREF as even better than the Dutch standardization sample.[17] Whereas in some other contexts transgender youth may experience gender-related abuse and victimization,[22,41,42] the positive results may also be attributable to supportive parents, open-minded peers, and the social and financial support (treatment is covered by health insurance) that gender dysphoric individuals can receive in the Netherlands.

Both genders benefitted from the clinical approach, although transwomen showed more improvement in body image satisfaction (secondary sex characteristics) and in psychological functioning (anger and anxiety). None of the transmen in this study had yet had a phalloplasty because of waiting lists or

TABLE 5 Correlations Between Residual Change in Psychological Functioning Over Time and Young Adult Subjective Well-Being

	WHOQOL BREF					
	Physical	Psychological	Social	Environment	SWLS	SHS
Gender dysphoria (UGDS)	0.01 (.97)	0.05 (.75)	−0.09 (.57)	−0.02 (.89)	0.06 (.71)	0.30 (.04)
Body image subscales (BIS)						
Primary sex characteristics	−0.22 (.14)	−0.25 (.09)	−0.35 (.02)	−0.04 (.78)	−0.22 (.14)	−0.21 (.17)
Secondary sex characteristics	−0.39 (.006)	−0.45 (<.001)	−0.47 (<.001)	−0.34 (.02)	−0.35 (.02)	−0.26 (.08)
Neutral body characteristics	−0.21 (.16)	−0.27 (.07)	−0.15 (.32)	−0.28 (.06)	−0.26 (.08)	−0.16 (.28)
Psychological functioning						
Global functioning (CGAS)	0.60 (<.001)	0.52 (.002)	0.52 (.002)	0.27 (.14)	0.58 (<.001)	0.50 (.004)
Depression (BDI)	−0.76 (<.001)	−0.72 (<.001)	−0.51 (.002)	−0.49 (.003)	−0.61 (<.001)	−0.77 (<.001)
Trait anger (TPI)	−0.37 (.03)	−0.18 (.31)	−0.22 (.20)	−0.29 (.09)	−0.33 (.07)	−0.35 (.05)
Trait anxiety (STAI)	−0.58 (<.001)	−0.64 (<.001)	−0.38 (.03)	−0.44 (.01)	−0.49 (.004)	−0.57 (<.001)
CBCL–ABCL						
Total *T* score	−0.20 (.20)	−0.12 (.45)	−0.07 (.65)	−0.14 (.35)	−0.32 (.03)	−0.16 (.29)
Internalizing *T* score	−0.29 (.06)	−0.29 (.06)	−0.23 (.14)	−0.12 (.44)	−0.48 (<.001)	−0.36 (.02)
Externalizing *T* score	−0.13 (.40)	−0.05 (.75)	0.16 (.29)	−0.20 (.19)	−0.15 (.36)	0.00 (.99)
Youth Self Report (YSR–ASR)						
Total *T* score	−0.53 (<.001)	−0.45 (.002)	−0.33 (.03)	−0.42 (.005)	−0.52 (<.001)	−0.55 (<.001)
Internalizing *T* score	−0.62 (<.001)	−0.61 (<.001)	−0.47 (<.001)	−0.40 (.007)	−0.66 (<.001)	−0.60 (<.001)
Externalizing *T* score	−0.23 (.13)	−0.10 (.53)	−0.07 (.67)	−0.37 (.02)	−0.22 (.15)	−0.35 (.02)

P values are in parentheses.

a desire for improved surgery techniques. This finding warrants further study of the specific concerns of young transmen.

Despite promising findings, there were various limitations. First, the study sample was small and came from only 1 clinic. Second, this study did not focus on physical side effects of treatment. Publications on physical parameters of the same cohort of adolescents are submitted or in preparation. A concurring finding exists in the 22-year follow-up of the well-functioning first case now at age 35 years who has no clinical signs of a negative impact of earlier puberty suppression on brain development, metabolic and endocrine parameters, or bone mineral density.[43] Third, despite the absence of pretreatment differences on measured indicators, a selection bias could exist between adolescents of the original cohort that participated in this study compared with nonparticipants.

Age criteria for puberty suppression and CSH are under debate, although they worked well for adolescents in the current study. Especially in natal females, puberty will often start before the age of 12 years. Despite the fact that developing evidence suggests that cognitive and affective cross-gender identification, social role transition, and age at assessment are related to persistence of childhood GD into adolescence, predicting individual persistence at a young age will always remain difficult.[44] The age criterion of 16 years for the start of CSH may be problematic especially for transwomen, as growth in height continues as long as cross-sex steroids are not provided (causing the growth plates to close). Therefore, psychological maturity and the capacity to give full informed consent may surface as the required criteria for puberty suppression and CSH[45] in cases that meet other eligibility criteria.

CONCLUSIONS

Results of this study provide first evidence that, after CSH and GRS, a treatment protocol including puberty suppression leads to improved psychological functioning of transgender adolescents. While enabling them to make important age-appropriate developmental transitions, it contributes to a satisfactory objective and subjective well-being in young adulthood. Clinicians should realize that it is not only early medical intervention that determines this success, but also a comprehensive multidisciplinary approach that attends to the adolescents' GD as well as their further well-being and a supportive environment.

ACKNOWLEDGMENTS

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Young Adult Psychological Outcome After Puberty Suppression and Gender Reassignment

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DEFENDANT'S EXHIBIT 24

POLICY STATEMENT Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of all Children

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

Ensuring Comprehensive Care and Support for Transgender and Gender-Diverse Children and Adolescents

Jason Rafferty, MD, MPH, EdM, FAAP, COMMITTEE ON PSYCHOSOCIAL ASPECTS OF CHILD AND FAMILY HEALTH, COMMITTEE ON ADOLESCENCE, SECTION ON LESBIAN, GAY, BISEXUAL, AND TRANSGENDER HEALTH AND WELLNESS

As a traditionally underserved population that faces numerous health disparities, youth who identify as transgender and gender diverse (TGD) and their families are increasingly presenting to pediatric providers for education, care, and referrals. The need for more formal training, standardized treatment, and research on safety and medical outcomes often leaves providers feeling ill equipped to support and care for patients that identify as TGD and families. In this policy statement, we review relevant concepts and challenges and provide suggestions for pediatric providers that are focused on promoting the health and positive development of youth that identify as TGD while eliminating discrimination and stigma.

INTRODUCTION

In its dedication to the health of all children, the American Academy of Pediatrics (AAP) strives to improve health care access and eliminate disparities for children and teenagers who identify as lesbian, gay, bisexual, transgender, or questioning (LGBTQ) of their sexual or gender identity.[1,2] Despite some advances in public awareness and legal protections, youth who identify as LGBTQ continue to face disparities that stem from multiple sources, including inequitable laws and policies, societal discrimination, and a lack of access to quality health care, including mental health care. Such challenges are often more intense for youth who do not conform to social expectations and norms regarding gender. Pediatric providers are increasingly encountering such youth and their families, who seek medical advice and interventions, yet they may lack the formal training to care for youth that identify as transgender and gender diverse (TGD) and their families.[3]

This policy statement is focused specifically on children and youth that identify as TGD rather than the larger LGBTQ population, providing brief, relevant background on the basis of current available research

abstract

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Department of Pediatrics, Hasbro Children's Hospital, Providence, Rhode Island; Thundermist Health Centers, Providence, Rhode Island; and Department of Child Psychiatry, Emma Pendleton Bradley Hospital, East Providence, Rhode Island

Dr Rafferty conceptualized the statement, drafted the initial manuscript, reviewed and revised the manuscript, approved the final manuscript as submitted, and agrees to be accountable for all aspects of the work.

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TABLE 1 Relevant Terms and Definitions Related to Gender Care

Term	Definition
Sex	An assignment that is made at birth, usually male or female, typically on the basis of external genital anatomy but sometimes on the basis of internal gonads, chromosomes, or hormone levels
Gender identity	A person's deep internal sense of being female, male, a combination of both, somewhere in between, or neither, resulting from a multifaceted interaction of biological traits, environmental factors, self-understanding, and cultural expectations
Gender expression	The external way a person expresses their gender, such as with clothing, hair, mannerisms, activities, or social roles
Gender perception	The way others interpret a person's gender expression
Gender diverse	A term that is used to describe people with gender behaviors, appearances, or identities that are incongruent with those culturally assigned to their birth sex; gender-diverse individuals may refer to themselves with many different terms, such as transgender, nonbinary, genderqueer,[7] gender fluid, gender creative, gender independent, or noncisgender. "Gender diverse" is used to acknowledge and include the vast diversity of gender identities that exists. It replaces the former term, "gender nonconforming," which has a negative and exclusionary connotation.
Transgender	A subset of gender-diverse youth whose gender identity does not match their assigned sex and generally remains persistent, consistent, and insistent over time; the term "transgender" also encompasses many other labels individuals may use to refer to themselves.
Cisgender	A term that is used to describe a person who identifies and expresses a gender that is consistent with the culturally defined norms of the sex they were assigned at birth
Agender	A term that is used to describe a person who does not identify as having a particular gender
Affirmed gender	When a person's true gender identity, or concern about their gender identity, is communicated to and validated from others as authentic
MTF; affirmed female; trans female	Terms that are used to describe individuals who were assigned male sex at birth but who have a gender identity and/or expression that is asserted to be more feminine
FTM; affirmed male; trans male	Terms that are used to describe individuals who were assigned female sex at birth but who have a gender identity and/or expression that is asserted to be more masculine
Gender dysphoria	A clinical symptom that is characterized by a sense of alienation to some or all of the physical characteristics or social roles of one's assigned gender; also, gender dysphoria is the psychiatric diagnosis in the *DSM-5*, which has focus on the distress that stems from the incongruence between one's expressed or experienced (affirmed) gender and the gender assigned at birth.
Gender identity disorder	A psychiatric diagnosis defined previously in the *DSM-IV* (changed to "gender dysphoria" in the *DSM-5*); the primary criteria include a strong, persistent cross-sex identification and significant distress and social impairment. This diagnosis is no longer appropriate for use and may lead to stigma, but the term may be found in older research.
Sexual orientation	A person's sexual identity in relation to the gender(s) to which they are attracted; sexual orientation and gender identity develop separately.

This list is not intended to be all inclusive. The pronouns "they" and "their" are used intentionally to be inclusive rather than the binary pronouns "he" and "she" and "his" and "her." Adapted from Bonifacio HJ, Rosenthal SM. Gender variance and dysphoria in children and adolescents. *Pediatr Clin North Am.* 2015;62(4):1001–1016. Adapted from Vance SR Jr, Ehrensaft D, Rosenthal SM. Psychological and medical care of gender nonconforming youth. *Pediatrics.* 2014;134(6):1184–1192. DSM-5, *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*; DSM-IV, *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*; FTM, female to male; MTF, male to female.

and expert opinion from clinical and research leaders, which will serve as the basis for recommendations. It is not a comprehensive review of clinical approaches and nuances to pediatric care for children and youth that identify as TGD. Professional understanding of youth that identify as TGD is a rapidly evolving clinical field in which research on appropriate clinical management is limited by insufficient funding.[3,4]

DEFINITIONS

To clarify recommendations and discussions in this policy statement, some definitions are provided. However, brief descriptions of human behavior or identities may not capture nuance in this evolving field. "Sex," or "natal gender," is a label, generally "male" or "female," that is typically assigned at birth on the basis of genetic and anatomic characteristics, such as genital anatomy, chromosomes, and sex hormone levels. Meanwhile, "gender identity" is one's internal sense of who one is, which results from a multifaceted interaction of biological traits, developmental influences, and environmental conditions. It may be male, female, somewhere in between, a combination of both, or neither (ie, not conforming to a binary conceptualization of gender). Self-recognition of gender identity develops over time, much the same way as a child's physical body does. For some people, gender identity can be fluid, shifting in different contexts. "Gender expression" refers to the wide array of ways people display their gender through clothing, hair styles, mannerisms, or social roles. Exploring different ways of expressing gender is common for children and may challenge social expectations. The way others interpret this expression is referred to as "gender perception" (Table 1).[5,6]

These labels may or may not be congruent. The term "cisgender" is used if someone identifies and expresses a gender that is consistent with the culturally defined norms of the sex that was assigned at birth. "Gender diverse" is an umbrella term to describe an ever-evolving array of labels that people may apply when their gender identity, expression, or even perception does not conform

to the norms and stereotypes others expect of their assigned sex. "Transgender" is usually reserved for a subset of such youth whose gender identity does not match their assigned sex and generally remains persistent, consistent, and insistent over time. These terms are not diagnoses; rather, they are personal and often dynamic ways of describing one's own gender experience.

Gender identity is not synonymous with "sexual orientation," which refers to a person's identity in relation to the gender(s) to which they are sexually and romantically attracted. Gender identity and sexual orientation are distinct but interrelated constructs.[8] Therefore, being transgender does not imply a sexual orientation, and people who identify as transgender still identify as straight, gay, bisexual, etc, on the basis of their attractions. (For more information, *The Gender Book*, found at www.thegenderbook.com, is a resource with illustrations that are used to highlight these core terms and concepts.)

EPIDEMIOLOGY

In population-based surveys, questions related to gender identity are rarely asked, which makes it difficult to assess the size and characteristics of the population that is TGD. In the 2014 Behavioral Risk Factor Surveillance System of the Centers for Disease Control and Prevention, only 19 states elected to include optional questions on gender identity. Extrapolation from these data suggests that the US prevalence of adults who identify as transgender or "gender nonconforming" is 0.6% (1.4 million), ranging from 0.3% in North Dakota to 0.8% in Hawaii.[9] On the basis of these data, it has been estimated that 0.7% of youth ages 13 to 17 years (~150 000) identify as transgender.[10] This number is much higher than previous estimates, which were extrapolated from individual states or specialty clinics, and is likely an underestimate given the stigma regarding those who openly identify as transgender and the difficulty in defining "transgender" in a way that is inclusive of all gender-diverse identities.[11]

There have been no large-scale prevalence studies among children and adolescents, and there is no evidence that adult statistics reflect young children or adolescents. In the 2014 Behavioral Risk Factor Surveillance System, those 18 to 24 years of age were more likely than older age groups to identify as transgender (0.7%).[9] Children report being aware of gender incongruence at young ages. Children who later identify as TGD report first having recognized their gender as "different" at an average age of 8.5 years; however, they did not disclose such feelings until an average of 10 years later.[12]

MENTAL HEALTH IMPLICATIONS

Adolescents and adults who identify as transgender have high rates of depression, anxiety, eating disorders, self-harm, and suicide.[13–20] Evidence suggests that an identity of TGD has an increased prevalence among individuals with autism spectrum disorder, but this association is not yet well understood.[21,22] In 1 retrospective cohort study, 56% of youth who identified as transgender reported previous suicidal ideation, and 31% reported a previous suicide attempt, compared with 20% and 11% among matched youth who identified as cisgender, respectively.[13] Some youth who identify as TGD also experience gender dysphoria, which is a specific diagnosis given to those who experience impairment in peer and/or family relationships, school performance, or other aspects of their life as a consequence of the incongruence between their assigned sex and their gender identity.[23]

There is no evidence that risk for mental illness is inherently attributable to one's identity of TGD. Rather, it is believed to be multifactorial, stemming from an internal conflict between one's appearance and identity, limited availability of mental health services, low access to health care providers with expertise in caring for youth who identify as TGD, discrimination, stigma, and social rejection.[24] This was affirmed by the American Psychological Association in 2008[25] (with practice guidelines released in 2015[8]) and the American Psychiatric Association, which made the following statement in 2012:

> *Being transgender or gender variant implies no impairment in judgment, stability, reliability, or general social or vocational capabilities; however, these individuals often experience discrimination due to a lack of civil rights protections for their gender identity or expression.… [Such] discrimination and lack of equal civil rights is damaging to the mental health of transgender and gender variant individuals.*[26]

Youth who identify as TGD often confront stigma and discrimination, which contribute to feelings of rejection and isolation that can adversely affect physical and emotional well-being. For example, many youth believe that they must hide their gender identity and expression to avoid bullying, harassment, or victimization. Youth who identify as TGD experience disproportionately high rates of homelessness, physical violence (at home and in the community), substance abuse, and high-risk sexual behaviors.[5,6,12,27–31] Among the 3 million HIV testing events that were reported in 2015, the highest percentages of new infections were among women who identified as transgender[32] and were also at particular risk for not knowing their HIV status.[30]

GENDER-AFFIRMATIVE CARE

In a gender-affirmative care model (GACM), pediatric providers offer developmentally appropriate care that is oriented toward understanding and appreciating the youth's gender experience. A strong, nonjudgmental partnership with youth and their families can facilitate exploration of complicated emotions and gender-diverse expressions while allowing questions and concerns to be raised in a supportive environment.[5] In a GACM, the following messages are conveyed:

- transgender identities and diverse gender expressions do not constitute a mental disorder;
- variations in gender identity and expression are normal aspects of human diversity, and binary definitions of gender do not always reflect emerging gender identities;
- gender identity evolves as an interplay of biology, development, socialization, and culture; and
- if a mental health issue exists, it most often stems from stigma and negative experiences rather than being intrinsic to the child.[27,33]

The GACM is best facilitated through the integration of medical, mental health, and social services, including specific resources and supports for parents and families.[24] Providers work together to destigmatize gender variance, promote the child's self-worth, facilitate access to care, educate families, and advocate for safer community spaces where children are free to develop and explore their gender.[5] A specialized gender-affirmative therapist, when available, may be an asset in helping children and their families build skills for dealing with gender-based stigma, address symptoms of anxiety or depression, and reinforce the child's overall resiliency.[34,35] There is a limited but growing body of evidence that suggests that using an integrated affirmative model results in young people having fewer mental health concerns whether they ultimately identify as transgender.[24,36,37]

In contrast, "conversion" or "reparative" treatment models are used to prevent children and adolescents from identifying as transgender or to dissuade them from exhibiting gender-diverse expressions. The Substance Abuse and Mental Health Services Administration has concluded that any therapeutic intervention with the goal of changing a youth's gender expression or identity is inappropriate.[33] Reparative approaches have been proven to be not only unsuccessful[38] but also deleterious and are considered outside the mainstream of traditional medical practice.[29,39–42] The AAP described reparative approaches as "unfair and deceptive."[43] At the time of this writing,* conversion therapy was banned by executive regulation in New York and by legislative statutes in 9 other states as well as the District of Columbia.[44]

Pediatric providers have an essential role in assessing gender concerns and providing evidence-based information to assist youth and families in medical decision-making. Not doing so can prolong or exacerbate gender dysphoria and contribute to abuse and stigmatization.[35] If a pediatric provider does not feel prepared to address gender concerns when they occur, then referral to a pediatric or mental health provider with more expertise is appropriate. There is little research on communication and efficacy with transfers in care for youth who identify as TGD, particularly from pediatric to adult providers.

DEVELOPMENTAL CONSIDERATIONS

Acknowledging that the capacity for emerging abstract thinking in childhood is important to conceptualize and reflect on identity, gender-affirmation guidelines are being focused on individually tailored interventions on the basis of the physical and cognitive development of youth who identify as TGD.[45] Accordingly, research substantiates that children who are prepubertal and assert an identity of TGD know their gender as clearly and as consistently as their developmentally equivalent peers who identify as cisgender and benefit from the same level of social acceptance.[46] This developmental approach to gender affirmation is in contrast to the outdated approach in which a child's gender-diverse assertions are held as "possibly true" until an arbitrary age (often after pubertal onset) when they can be considered valid, an approach that authors of the literature have termed "watchful waiting." This outdated approach does not serve the child because critical support is withheld. Watchful waiting is based on binary notions of gender in which gender diversity and fluidity is pathologized; in watchful waiting, it is also assumed that notions of gender identity become fixed at a certain age. The approach is also influenced by a group of early studies with validity concerns, methodologic flaws, and limited follow-up on children who identified as TGD and, by adolescence, did not seek further treatment ("desisters").[45,47] More robust and current research suggests that, rather than focusing on who a child will become, valuing them for who they are, even at a young age, fosters secure attachment and resilience, not only for the child but also for the whole family.[5,45,48,49]

* For more information regarding state-specific laws, please contact the AAP Division of State Government Affairs at stgov@ aap.org.

MEDICAL MANAGEMENT

Pediatric primary care providers are in a unique position to routinely inquire about gender development in children and adolescents as part of recommended well-child visits[50] and to be a reliable source of validation, support, and reassurance. They are often the first provider to be aware that a child may not identify as cisgender or that there may be distress related to a gender-diverse identity. The best way to approach gender with patients is to inquire directly and nonjudgmentally about their experience and feelings before applying any labels.[27,51]

Many medical interventions can be offered to youth who identify as TGD and their families. The decision of whether and when to initiate gender-affirmative treatment is personal and involves careful consideration of risks, benefits, and other factors unique to each patient and family. Many protocols suggest that clinical assessment of youth who identify as TGD is ideally conducted on an ongoing basis in the setting of a collaborative, multidisciplinary approach, which, in addition to the patient and family, may include the pediatric provider, a mental health provider (preferably with expertise in caring for youth who identify as TGD), social and legal supports, and a pediatric endocrinologist or adolescent-medicine gender specialist, if available.[6,28] There is no prescribed path, sequence, or end point. Providers can make every effort to be aware of the influence of their own biases. The medical options also vary depending on pubertal and developmental progression.

Clinical Setting

In the past year, 1 in 4 adults who identified as transgender avoided a necessary doctor's visit because of fear of being mistreated.[31] All clinical office staff have a role in affirming a patient's gender identity. Making flyers available or displaying posters related to LGBTQ health issues, including information for children who identify as TGD and families, reveals inclusivity and awareness. Generally, patients who identify as TGD feel most comfortable when they have access to a gender-neutral restroom. Diversity training that encompasses sensitivity when caring for youth who identify as TGD and their families can be helpful in educating clinical and administrative staff. A patient-asserted name and pronouns are used by staff and are ideally reflected in the electronic medical record without creating duplicate charts.[52,53] The US Centers for Medicare and Medicaid Services and the National Coordinator for Health Information Technology require all electronic health record systems certified under the Meaningful Use incentive program to have the capacity to confidentially collect information on gender identity.[54,55] Explaining and maintaining confidentiality procedures promotes openness and trust, particularly with youth who identify as LGBTQ.[1] Maintaining a safe clinical space can provide at least 1 consistent, protective refuge for patients and families, allowing authentic gender expression and exploration that builds resiliency.

Pubertal Suppression

Gonadotrophin-releasing hormones have been used to delay puberty since the 1980s for central precocious puberty.[56] These reversible treatments can also be used in adolescents who experience gender dysphoria to prevent development of secondary sex characteristics and provide time up until 16 years of age for the individual and the family to explore gender identity, access psychosocial supports, develop coping skills, and further define appropriate treatment goals. If pubertal suppression treatment is suspended, then endogenous puberty will resume.[20,57,58]

Often, pubertal suppression creates an opportunity to reduce distress that may occur with the development of secondary sexual characteristics and allow for gender-affirming care, including mental health support for the adolescent and the family. It reduces the need for later surgery because physical changes that are otherwise irreversible (protrusion of the Adam's apple, male pattern baldness, voice change, breast growth, etc) are prevented. The available data reveal that pubertal suppression in children who identify as TGD generally leads to improved psychological functioning in adolescence and young adulthood.[20,57–59]

Pubertal suppression is not without risks. Delaying puberty beyond one's peers can also be stressful and can lead to lower self-esteem and increased risk taking.[60] Some experts believe that genital underdevelopment may limit some potential reconstructive options.[61] Research on long-term risks, particularly in terms of bone metabolism[62] and fertility,[63] is currently limited and provides varied results.[57,64,65] Families often look to pediatric providers for help in considering whether pubertal suppression is indicated in the context of their child's overall well-being as gender diverse.

Gender Affirmation

As youth who identify as TGD reflect on and evaluate their gender identity, various interventions may be considered to better align their gender expression with their underlying identity. This process of reflection, acceptance, and, for some, intervention is known as "gender affirmation." It was formerly referred to as "transitioning," but many view the process as an affirmation and acceptance of who they have always been rather than a transition

TABLE 2 The Process of Gender Affirmation May Include ≥1 of the Following Components

Component	Definition	General Age Range[a]	Reversibility[a]
Social affirmation	Adopting gender-affirming hairstyles, clothing, name, gender pronouns, and restrooms and other facilities	Any	Reversible
Puberty blockers	Gonadotropin-releasing hormone analogues, such as leuprolide and histrelin	During puberty (Tanner stage 2–5)[b]	Reversible[c]
Cross-sex hormone therapy	Testosterone (for those who were assigned female at birth and are masculinizing); estrogen plus androgen inhibitor (for those who were assigned male at birth and are feminizing)	Early adolescence onward	Partially reversible (skin texture, muscle mass, and fat deposition); irreversible once developed (testosterone: Adam's apple protrusion, voice changes, and male pattern baldness; estrogen: breast development); unknown reversibility (effect on fertility)
Gender-affirming surgeries	"Top" surgery (to create a male-typical chest shape or enhance breasts); "bottom" surgery (surgery on genitals or reproductive organs); facial feminization and other procedures	Typically adults (adolescents on case-by-case basis[d])	Not reversible
Legal affirmation	Changing gender and name recorded on birth certificate, school records, and other documents	Any	Reversible

[a] Note that the provided age range and reversibility is based on the little data that are currently available.
[b] There is limited benefit to starting gonadotropin-releasing hormone after Tanner stage 5 for pubertal suppression. However, when cross-sex hormones are initiated with a gradually increasing schedule, the initial levels are often not high enough to suppress endogenous sex hormone secretion. Therefore, gonadotropin-releasing hormone may be continued in accordance with the Endocrine Society Guidelines.[68]
[c] The effect of sustained puberty suppression on fertility is unknown. Pubertal suppression can be, and often is indicated to be, followed by cross-sex hormone treatment. However, when cross-sex hormones are initiated without endogenous hormones, then fertility may be decreased.[68]
[d] Eligibility criteria for gender-affirmative surgical interventions among adolescents are not clearly defined between established protocols and practice. When applicable, eligibility is usually determined on a case-by-case basis with the adolescent and the family along with input from medical, mental health, and surgical providers.[68–71]

from 1 gender identity to another. Accordingly, some people who have gone through the process prefer to call themselves "affirmed females, males, etc" (or just "females, males, etc"), rather than using the prefix "trans-." Gender affirmation is also used to acknowledge that some individuals who identify as TGD may feel affirmed in their gender without pursuing medical or surgical interventions.[7,66]

Supportive involvement of parents and family is associated with better mental and physical health outcomes.[67] Gender affirmation among adolescents with gender dysphoria often reduces the emphasis on gender in their lives, allowing them to attend to other developmental tasks, such as academic success, relationship building, and future-oriented planning.[64] Most protocols for gender-affirming interventions incorporate World Professional Association of Transgender Health[35] and Endocrine Society[68] recommendations and include ≥1 of the following elements (Table 2):

1. Social Affirmation: This is a reversible intervention in which children and adolescents express partially or completely in their asserted gender identity by adapting hairstyle, clothing, pronouns, name, etc. Children who identify as transgender and socially affirm and are supported in their asserted gender show no increase in depression and only minimal (clinically insignificant) increases in anxiety compared with age-matched averages.[48] Social affirmation can be complicated given the wide range of social interactions children have (eg, extended families, peers, school, community, etc). There is little guidance on the best approach (eg, all at once, gradual, creating new social networks, or affirming within existing networks, etc). Pediatric providers can best support families by anticipating and discussing such complexity proactively, either in their own practice or through enlisting a qualified mental health provider.

2. Legal Affirmation: Elements of a social affirmation, such as a name and gender marker, become official on legal documents, such as birth certificates, passports, identification cards, school documents, etc. The processes for making these changes depend on state laws and may require specific documentation from pediatric providers.

3. Medical Affirmation: This is the process of using cross-sex hormones to allow adolescents who have initiated puberty to develop secondary sex characteristics of the opposite biological sex. Some changes are partially reversible if hormones are stopped, but others become

irreversible once they are fully developed (Table 2).

4. Surgical Affirmation: Surgical approaches may be used to feminize or masculinize features, such as hair distribution, chest, or genitalia, and may include removal of internal organs, such as ovaries or the uterus (affecting fertility). These changes are irreversible. Although current protocols typically reserve surgical interventions for adults,[35,68] they are occasionally pursued during adolescence on a case-by-case basis, considering the necessity and benefit to the adolescent's overall health and often including multidisciplinary input from medical, mental health, and surgical providers as well as from the adolescent and family.[69–71]

For some youth who identify as TGD whose natal gender is female, menstruation, breakthrough bleeding, and dysmenorrhea can lead to significant distress before or during gender affirmation. The American College of Obstetrics and Gynecology suggests that, although limited data are available to outline management, menstruation can be managed without exogenous estrogens by using a progesterone-only pill, a medroxyprogesterone acetate shot, or a progesterone-containing intrauterine or implantable device.[72] If estrogen can be tolerated, oral contraceptives that contain both progesterone and estrogen are more effective at suppressing menses.[73] The Endocrine Society guidelines also suggest that gonadotrophin-releasing hormones can be used for menstrual suppression before the anticipated initiation of testosterone or in combination with testosterone for breakthrough bleeding (enables phenotypic masculinization at a lower dose than if testosterone is used alone).[68] Masculinizing hormones in natal female patients may lead to a cessation of menses, but unplanned pregnancies have been reported, which emphasizes the need for ongoing contraceptive counseling with youth who identify as TGD.[72]

HEALTH DISPARITIES

In addition to societal challenges, youth who identify as TGD face several barriers within the health care system, especially regarding access to care. In 2015, a focus group of youth who identified as transgender in Seattle, Washington, revealed 4 problematic areas related to health care:

1. safety issues, including the lack of safe clinical environments and fear of discrimination by providers;
2. poor access to physical health services, including testing for sexually transmitted infections;
3. inadequate resources to address mental health concerns; and
4. lack of continuity with providers.[74]

This study reveals the obstacles many youth who identify as TGD face in accessing essential services, including the limited supply of appropriately trained medical and psychological providers, fertility options, and insurance coverage denials for gender-related treatments.[74]

Insurance denials for services related to the care of patients who identify as TGD are a significant barrier. Although the Office for Civil Rights of the US Department of Health and Human Services explicitly stated in 2012 that the nondiscrimination provision in the Patient Protection and Affordable Care Act includes people who identify as gender diverse,[75,76] insurance claims for gender affirmation, particularly among youth who identify as TGD, are frequently denied.[54,77] In 1 study, it was found that approximately 25% of individuals who identified as transgender were denied insurance coverage because of being transgender.[31] The burden of covering medical expenses that are not covered by insurance can be financially devastating, and even when expenses are covered, families describe high levels of stress in navigating and submitting claims appropriately.[78] In 2012, a large gender center in Boston, Massachusetts, reported that most young patients who identified as transgender and were deemed appropriate candidates for recommended gender care were unable to obtain it because of such denials, which were based on the premise that gender dysphoria was a mental disorder, not a physical one, and that treatment was not medically or surgically necessary.[24] This practice not only contributes to stigma, prolonged gender dysphoria, and poor mental health outcomes,[77] but it may also lead patients to seek nonmedically supervised treatments that are potentially dangerous.[24] Furthermore, insurance denials can reinforce a socioeconomic divide between those who can finance the high costs of uncovered care and those who cannot.[24,77]

The transgender youth group in Seattle likely reflected the larger TGD population when they described how obstacles adversely affect self-esteem and contribute to the perception that they are undervalued by society and the health care system.[74,77] Professional medical associations, including the AAP, are increasingly calling for equity in health care provisions regardless of gender identity or expression.[1,8,23,72] There is a critical need for investments in research on the prevalence, disparities, biological underpinnings, and standards of care relating to gender-diverse populations. Pediatric providers who work with state government and insurance officials can play an essential role in advocating for

stronger nondiscrimination policies and improved coverage.

There is a lack of quality research on the experience of youth of color who identify as transgender. One theory suggests that the intersection of racism, transphobia, and sexism may result in the extreme marginalization that is experienced among many women of color who identify as transgender,[79] including rejection from their family and dropping out of school at younger ages (often in the setting of rigid religious beliefs regarding gender),[80] increased levels of violence and body objectification,[81] 3 times the risk of poverty compared with the general population,[31] and the highest prevalence of HIV compared with other risk groups (estimated as high as 56.3% in 1 meta-analysis).[30] One model suggests that pervasive stigma and oppression can be associated with psychological distress (anxiety, depression, and suicide) and adoption of risk behaviors by such youth to obtain a sense of validation toward their complex identities.[79]

FAMILY ACCEPTANCE

Research increasingly suggests that familial acceptance or rejection ultimately has little influence on the gender identity of youth; however, it may profoundly affect young people's ability to openly discuss or disclose concerns about their identity. Suppressing such concerns can affect mental health.[82] Families often find it hard to understand and accept their child's gender-diverse traits because of personal beliefs, social pressure, and stigma.[49,83] Legitimate fears may exist for their child's welfare, safety, and acceptance that pediatric providers need to appreciate and address. Families can be encouraged to communicate their concerns and questions. Unacknowledged concerns can contribute to shame and hesitation in regard to offering support and understanding,[84] which is essential for the child's self-esteem, social involvement, and overall health as TGD.[48,85–87] Some caution has been expressed that unquestioning acceptance per se may not best serve questioning youth or their families. Instead, psychological evidence suggests that the most benefit comes when family members and youth are supported and encouraged to engage in reflective perspective taking and validate their own and the other's thoughts and feelings despite divergent views.[49,82]

In this regard, suicide attempt rates among 433 adolescents in Ontario who identified as "trans" were 4% among those with strongly supportive parents and as high as 60% among those whose parents were not supportive.[85] Adolescents who identify as transgender and endorse at least 1 supportive person in their life report significantly less distress than those who only experience rejection. In communities with high levels of support, it was found that nonsupportive families tended to increase their support over time, leading to dramatic improvement in mental health outcomes among their children who identified as transgender.[88]

Pediatric providers can create a safe environment for parents and families to better understand and listen to the needs of their children while receiving reassurance and education.[83] It is often appropriate to assist the child in understanding the parents' concerns as well. Despite expectations by some youth with transgender identity for immediate acceptance after "coming out," family members often proceed through a process of becoming more comfortable and understanding of the youth's gender identity, thoughts, and feelings. One model suggests that the process resembles grieving, wherein the family separates from their expectations for their child to embrace a new reality. This process may proceed through stages of shock, denial, anger, feelings of betrayal, fear, self-discovery, and pride.[89] The amount of time spent in any of these stages and the overall pace varies widely. Many family members also struggle as they are pushed to reflect on their own gender experience and assumptions throughout this process. In some situations, youth who identify as TGD may be at risk for internalizing the difficult emotions that family members may be experiencing. In these cases, individual and group therapy for the family members may be helpful.[49,78]

Family dynamics can be complex, involving disagreement among legal guardians or between guardians and their children, which may affect the ability to obtain consent for any medical management or interventions. Even in states where minors may access care without parental consent for mental health services, contraception, and sexually transmitted infections, parental or guardian consent is required for hormonal and surgical care of patients who identify as TGD.[72,90] Some families may take issue with providers who address gender concerns or offer gender-affirming care. In rare cases, a family may deny access to care that raises concerns about the youth's welfare and safety; in those cases, additional legal or ethical support may be useful to consider. In such rare situations, pediatric providers may want to familiarize themselves with relevant local consent laws and maintain their primary responsibility for the welfare of the child.

SAFE SCHOOLS AND COMMUNITIES

Youth who identify as TGD are becoming more visible because gender-diverse expression is increasingly admissible in the media, on social media, and in schools and communities. Regardless of whether a youth with a gender-diverse

identity ultimately identifies as transgender, challenges exist in nearly every social context, from lack of understanding to outright rejection, isolation, discrimination, and victimization. In the US Transgender Survey of nearly 28 000 respondents, it was found that among those who were out as or perceived to be TGD between kindergarten and eighth grade, 54% were verbally harassed, 24% were physically assaulted, and 13% were sexually assaulted; 17% left school because of maltreatment.[31] Education and advocacy from the medical community on the importance of safe schools for youth who identify as TGD can have a significant effect.

At the time of this writing,* only 18 states and the District of Columbia had laws that prohibited discrimination based on gender expression when it comes to employment, housing, public accommodations, and insurance benefits. Over 200 US cities have such legislation. In addition to basic protections, many youth who identify as TGD also have to navigate legal obstacles when it comes to legally changing their name and/or gender marker.[54] In addition to advocating and working with policy makers to promote equal protections for youth who identify as TGD, pediatric providers can play an important role by developing a familiarity with local laws and organizations that provide social work and legal assistance to youth who identify as TGD and their families.

School environments play a significant role in the social and emotional development of children. Every child has a right to feel safe and respected at school, but for youth who identify as TGD, this can be challenging. Nearly every aspect of school life may present safety concerns and require negotiations regarding their gender expression, including name/pronoun use, use of bathrooms and locker rooms, sports teams, dances and activities, overnight activities, and even peer groups. Conflicts in any of these areas can quickly escalate beyond the school's control to larger debates among the community and even on a national stage.

The formerly known Gay, Lesbian, and Straight Education Network (GLSEN), an advocacy organization for youth who identify as LGBTQ, conducts an annual national survey to measure LGBTQ well-being in US schools. In 2015, students who identified as LGBTQ reported high rates of being discouraged from participation in extracurricular activities. One in 5 students who identified as LGBTQ reported being hindered from forming or participating in a club to support lesbian, gay, bisexual, or transgender students (eg, a gay straight alliance, now often referred to as a genders and sexualities alliance) despite such clubs at schools being associated with decreased reports of negative remarks about sexual orientation or gender expression, increased feelings of safety and connectedness at school, and lower levels of victimization. In addition, >20% of students who identified as LGBTQ reported being blocked from writing about LGBTQ issues in school yearbooks or school newspapers or being prevented or discouraged by coaches and school staff from participating in sports because of their sexual orientation or gender expression.[91]

One strategy to prevent conflict is to proactively support policies and protections that promote inclusion and safety of all students. However, such policies are far from consistent across districts. In 2015, GLSEN found that 43% of children who identified as LGBTQ reported feeling unsafe at school because of their gender expression, but only 6% reported that their school had official policies to support youth who identified as TGD, and only 11% reported that their school's antibullying policies had specific protections for gender expression.[91] Consequently, more than half of the students who identified as transgender in the study were prevented from using the bathroom, names, or pronouns that aligned with their asserted gender at school. A lack of explicit policies that protected youth who identified as TGD was associated with increased reported victimization, with more than half of students who identified as LGBTQ reporting verbal harassment because of their gender expression. Educators and school administrators play an essential role in advocating for and enforcing such policies. GLSEN found that when students recognized actions to reduce gender-based harassment, both students who identified as transgender and cisgender reported a greater connection to staff and feelings of safety.[91] In another study, schools were open to education regarding gender diversity and were willing to implement policies when they were supported by external agencies, such as medical professionals.[92]

Academic content plays an important role in building a safe school environment as well. The 2015 GLSEN survey revealed that when positive representations of people who identified as LGBTQ were included in the curriculum, students who identified as LGBTQ reported less hostile school environments, less victimization and greater feelings of safety, fewer school absences because of feeling unsafe, greater feelings of connectedness to their school

* For more information regarding state-specific laws, please contact the AAP Division of State Government Affairs at stgov@ aap.org.

community, and an increased interest in high school graduation and postsecondary education.[91] At the time of this writing,* 8 states had laws that explicitly forbade teachers from even discussing LGBTQ issues.[54]

MEDICAL EDUCATION

One of the most important ways to promote high-quality health care for youth who identify as TGD and their families is increasing the knowledge base and clinical experience of pediatric providers in providing culturally competent care to such populations, as recommended by the recently released guidelines by the Association of American Medical Colleges.[93] This begins with the medical school curriculum in areas such as human development, sexual health, endocrinology, pediatrics, and psychiatry. In a 2009–2010 survey of US medical schools, it was found that the median number of hours dedicated to LGBTQ health was 5, with one-third of US medical schools reporting no LGBTQ curriculum during the clinical years.[94]

During residency training, there is potential for gender diversity to be emphasized in core rotations, especially in pediatrics, psychiatry, family medicine, and obstetrics and gynecology. Awareness could be promoted through the inclusion of topics relevant to caring for children who identify as TGD in the list of core competencies published by the American Board of Pediatrics, certifying examinations, and relevant study materials. Continuing education and maintenance of certification activities can include topics relevant to TGD populations as well.

* For more information regarding state-specific laws, please contact the AAP Division of State Government Affairs at stgov@ aap.org.

RECOMMENDATIONS

The AAP works toward all children and adolescents, regardless of gender identity or expression, receiving care to promote optimal physical, mental, and social well-being. Any discrimination based on gender identity or expression, real or perceived, is damaging to the socioemotional health of children, families, and society. In particular, the AAP recommends the following:

1. that youth who identify as TGD have access to comprehensive, gender-affirming, and developmentally appropriate health care that is provided in a safe and inclusive clinical space;
2. that family-based therapy and support be available to recognize and respond to the emotional and mental health needs of parents, caregivers, and siblings of youth who identify as TGD;
3. that electronic health records, billing systems, patient-centered notification systems, and clinical research be designed to respect the asserted gender identity of each patient while maintaining confidentiality and avoiding duplicate charts;
4. that insurance plans offer coverage for health care that is specific to the needs of youth who identify as TGD, including coverage for medical, psychological, and, when indicated, surgical gender-affirming interventions;
5. that provider education, including medical school, residency, and continuing education, integrate core competencies on the emotional and physical health needs and best practices for the care of youth who identify as TGD and their families;
6. that pediatricians have a role in advocating for, educating, and developing liaison relationships with school districts and other community organizations to promote acceptance and inclusion of all children without fear of harassment, exclusion, or bullying because of gender expression;
7. that pediatricians have a role in advocating for policies and laws that protect youth who identify as TGD from discrimination and violence;
8. that the health care workforce protects diversity by offering equal employment opportunities and workplace protections, regardless of gender identity or expression; and
9. that the medical field and federal government prioritize research that is dedicated to improving the quality of evidence-based care for youth who identify as TGD.

LEAD AUTHOR

Jason Richard Rafferty, MD, MPH, EdM, FAAP

CONTRIBUTOR

Robert Garofalo, MD, FAAP

COMMITTEE ON PSYCHOSOCIAL ASPECTS OF CHILD AND FAMILY HEALTH, 2017–2018

Michael Yogman, MD, FAAP, Chairperson
Rebecca Baum, MD, FAAP
Thresia B. Gambon, MD, FAAP
Arthur Lavin, MD, FAAP
Gerri Mattson, MD, FAAP
Lawrence Sagin Wissow, MD, MPH, FAAP

LIAISONS

Sharon Berry, PhD, LP – *Society of Pediatric Psychology*
Ed Christophersen, PhD, FAAP – *Society of Pediatric Psychology*
Norah Johnson, PhD, RN, CPNP-BC – *National Association of Pediatric Nurse Practitioners*
Amy Starin, PhD, LCSW – *National Association of Social Workers*
Abigail Schlesinger, MD – *American Academy of Child and Adolescent Psychiatry*

STAFF

Karen S. Smith
James Baumberger

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ABBREVIATIONS

AAP: American Academy of Pediatrics
GACM: gender-affirmative care model
GLSEN: Gay, Lesbian, and Straight Education Network
LGBTQ: lesbian, gay, bisexual, transgender, or questioning
TGD: transgender and gender diverse

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Address correspondence to Jason Rafferty, MD, MPH, EdM, FAAP. E-mail: Jason_Rafferty@mail.harvard.edu

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Ensuring Comprehensive Care and Support for Transgender and Gender-Diverse Children and Adolescents

Jason Rafferty, COMMITTEE ON PSYCHOSOCIAL ASPECTS OF CHILD AND FAMILY HEALTH, COMMITTEE ON ADOLESCENCE and SECTION ON LESBIAN, GAY, BISEXUAL, AND TRANSGENDER HEALTH AND WELLNESS

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DOC. 69-25

DEFENDANT'S EXHIBIT 25

Guidelines for Psychological Practice With Transgender and Gender Nonconforming People

American Psychological Association

Transgender and gender nonconforming[1] (TGNC) people are those who have a gender identity that is not fully aligned with their sex assigned at birth. The existence of TGNC people has been documented in a range of historical cultures (Coleman, Colgan, & Gooren, 1992; Feinberg, 1996; Miller & Nichols, 2012; Schmidt, 2003). Current population estimates of TGNC people have ranged from 0.17 to 1,333 per 100,000 (Meier & Labuski, 2013). The Massachusetts Behavioral Risk Factor Surveillance Survey found 0.5% of the adult population aged 18 to 64 years identified as TGNC between 2009 and 2011 (Conron, Scott, Stowell, & Landers, 2012). However, population estimates likely underreport the true number of TGNC people, given difficulties in collecting comprehensive demographic information about this group (Meier & Labuski, 2013). Within the last two decades, there has been a significant increase in research about TGNC people. This increase in knowledge, informed by the TGNC community, has resulted in the development of progressively more trans-affirmative practice across the multiple health disciplines involved in the care of TGNC people (Bockting, Knudson, & Goldberg, 2006; Coleman et al., 2012). Research has documented the extensive experiences of stigma and discrimination reported by TGNC people (Grant et al., 2011) and the mental health consequences of these experiences across the life span (Bockting, Miner, Swinburne Romine, Hamilton, & Coleman, 2013), including increased rates of depression (Fredriksen-Goldsen et al., 2014) and suicidality (Clements-Nolle, Marx, & Katz, 2006). TGNC people's lack of access to trans-affirmative mental and physical health care is a common barrier (Fredriksen-Goldsen et al., 2014; Garofalo, Deleon, Osmer, Doll, & Harper, 2006; Grossman & D'Augelli, 2006), with TGNC people sometimes being denied care because of their gender identity (Xavier et al., 2012).

In 2009, the American Psychological Association (APA) Task Force on Gender Identity and Gender Variance (TFGIGV) survey found that less than 30% of psychologist and graduate student participants reported familiarity with issues that TGNC people experience (APA TFGIGV, 2009). Psychologists and other mental health professionals who have limited training and experience in TGNC-affirmative care may cause harm to TGNC people (Mikalson, Pardo, & Green, 2012; Xavier et al., 2012). The significant level of societal stigma and discrimination that TGNC people face, the associated mental health consequences, and psychologists' lack of familiarity with trans-affirmative care led the APA Task Force to recommend that psychological practice guidelines be developed to help psychologists maximize the effectiveness of services offered and avoid harm when working with TGNC people and their families.

Purpose

The purpose of the *Guidelines for Psychological Practice with Transgender and Gender Nonconforming People* (hereafter *Guidelines*) is to assist psychologists in the provision of culturally competent, developmentally appropriate, and trans-affirmative psychological practice with TGNC people. Trans-affirmative practice is the provision

The American Psychological Association's (APA's) Task Force on Guidelines for Psychological Practice with Transgender and Gender Nonconforming People developed these guidelines. lore m. dickey, Louisiana Tech University, and Anneliese A. Singh, The University of Georgia, served as chairs of the Task Force. The members of the Task Force included Walter O. Bockting, Columbia University; Sand Chang, Independent Practice; Kelly Ducheny, Howard Brown Health Center; Laura Edwards-Leeper, Pacific University; Randall D. Ehrbar, Whitman Walker Health Center; Max Fuentes Fuhrmann, Independent Practice; Michael L. Hendricks, Washington Psychological Center, P.C.; and Ellen Magalhaes, Center for Psychological Studies at Nova Southeastern University and California School of Professional Psychology at Alliant International University.

The Task Force is grateful to BT, Robin Buhrke, Jenn Burleton, Theo Burnes, Loree Cook-Daniels, Ed Delgado-Romero, Maddie Deutsch, Michelle Emerick, Terry S. Gock, Kristin Hancock, Razia Kosi, Kimberly Lux, Shawn MacDonald, Pat Magee, Tracee McDaniel, Edgardo Menvielle, Parrish Paul, Jamie Roberts, Louise Silverstein, Mary Alice Silverman, Holiday Simmons, Michael C. Smith, Cullen Sprague, David Whitcomb, and Milo Wilson for their assistance in providing important input and feedback on drafts of the guidelines. The Task Force is especially grateful to Clinton Anderson, Director, and Ron Schlittler, Program Coordinator, of APA's Office on LGBT Concerns, who adeptly assisted and provided counsel to the Task Force throughout this project. The Task Force would also like to thank liaisons from the APA Committee on Professional Practice and Standards (COPPS), April Harris-Britt and Scott Hunter, and their staff support, Mary Hardiman. Additionally, members of the Task Force would like to thank the staff at the Phillip Rush Center and Agnes Scott College Counseling Center in Atlanta, Georgia, who served as hosts for face-to-face meetings.

This document will expire as APA policy in 2022. After this date, users should contact the APA Public Interest Directorate to determine whether the guidelines in this document remain in effect as APA policy.

Correspondence concerning this article should be addressed to the Public Interest Directorate, American Psychological Association, 750 First Street, NE, Washington, DC 20002.

[1] For the purposes of these guidelines, we use the term *transgender and gender nonconforming* (TGNC). We intend for the term to be as broadly inclusive as possible, and recognize that some TGNC people do not ascribe to these terms. Readers are referred to Appendix A for a listing of terms that include various TGNC identity labels.

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of care that is respectful, aware, and supportive of the identities and life experiences of TGNC people (Korell & Lorah, 2007). The *Guidelines* are an introductory resource for psychologists who will encounter TGNC people in their practice, but can also be useful for psychologists with expertise in this area of practice to improve the care already offered to TGNC people. The *Guidelines* include a set of definitions for readers who may be less familiar with language used when discussing gender identity and TGNC populations (see Appendix A). Distinct from TGNC, the term "cisgender" is used to refer to people whose sex assigned at birth is aligned with their gender identity (E. R. Green, 2006; Serano, 2006).

Given the added complexity of working with TGNC and gender-questioning youth[2] and the limitations of the available research, the *Guidelines* focus primarily, though not exclusively, on TGNC adults. Future revisions of the *Guidelines* will deepen a focus on TGNC and gender-questioning children and adolescents. The *Guidelines* address the strengths of TGNC people, the challenges they face, ethical and legal issues, life span considerations, research, education, training, and health care. Because issues of gender identity are often conflated with issues of gender expression or sexual orientation, psychological practice with the TGNC population warrants the acquisition of specific knowledge about concerns unique to TGNC people that are not addressed by other practice guidelines (APA, 2012). It is important to note that these *Guidelines* are not intended to address some of the conflicts that cisgender people may experience due to societal expectations regarding gender roles (Butler, 1990), nor are they intended to address intersex people (Dreger, 1999; Preves, 2003).

Documentation of Need

In 2005, the APA Council of Representatives authorized the creation of the Task Force on Gender Identity and Gender Variance (TFGIGV), charging the Task Force to review APA policies related to TGNC people and to offer recommendations for APA to best meet the needs of TGNC people (APA TFGIGV, 2009). In 2009, the APA Council of Representatives adopted the Resolution on Transgender, Gender Identity, & Gender Expression Non-Discrimination, which calls upon psychologists in their professional roles to provide appropriate, nondiscriminatory treatment; encourages psychologists to take a leadership role in working against discrimination; supports the provision of adequate and necessary mental and medical health care; recognizes the efficacy, benefit, and medical necessity of gender transition; supports access to appropriate treatment in institutional settings; and supports the creation of educational resources for all psychologists (Anton, 2009). In 2009, in an extensive report on the current state of psychological practice with TGNC people, the TFGIGV determined that there was sufficient knowledge and expertise in the field to warrant the development of practice guidelines for TGNC populations (APA TFGIGV, 2009). The report identified that TGNC people constituted a population with unique needs and that the creation of practice guidelines would be a valuable resource for the field (APA TFGIGV, 2009). Psychologists' relative lack of knowledge about TGNC people and trans-affirmative care, the level of societal stigma and discrimination that TGNC people face, and the significant mental health consequences that TGNC people experience as a result offer a compelling need for psychological practice guidelines for this population.

Users

The intended audience for these *Guidelines* includes psychologists who provide clinical care, conduct research, or provide education or training. Given that gender identity issues can arise at any stage in a TGNC person's life (Lev, 2004), clinicians can encounter a TGNC person in practice or have a client's presenting problem evolve into an issue related to gender identity and gender expression. Researchers, educators, and trainers will benefit from use of these *Guidelines* to inform their work, even when not specifically focused on TGNC populations. Psychologists who focus on TGNC populations in their clinical practice, research, or educational and training activities will also benefit from the use of these *Guidelines*.

Distinction Between Standards and Guidelines

When using these *Guidelines*, psychologists should be aware that APA has made an important distinction between *standards* and *guidelines* (Reed, McLaughlin, & Newman, 2002). Standards are mandates to which all psychologists must adhere (e.g., the *Ethical Principles of Psychologists and Code of Conduct*; APA, 2010), whereas guidelines are aspirational. Psychologists are encouraged to use these *Guidelines* in tandem with the *Ethical Principles of Psychologists and Code of Conduct*, and should be aware that state and federal laws may override these *Guidelines* (APA, 2010).

In addition, these *Guidelines* refer to psychological practice (e.g., clinical work, consultation, education, research, and training) rather than treatment. Practice guidelines are practitioner-focused and provide guidance for professionals regarding "conduct and the issues to be considered in particular areas of clinical practice" (Reed et al., 2002, p. 1044). Treatment guidelines are client-focused and address intervention-specific recommendations for a clinical population or condition (Reed et al., 2002). The current *Guidelines* are intended to complement treatment guidelines for TGNC people seeking mental health services, such as those set forth by the World Professional Association for Transgender Health Standards of Care (Coleman et al., 2012) and the Endocrine Society (Hembree et al., 2009).

[2] For the purposes of these guidelines, "youth" refers to both children and adolescents under the age of 18.

Compatibility

These *Guidelines* are consistent with the APA *Ethical Principles of Psychologists and Code of Conduct* (APA, 2010), the *Standards of Accreditation for Health Service Psychology* (APA, 2015), the APA TFGIGV (2009) report, and the APA Council of Representatives Resolution on Transgender, Gender Identity, & Gender Expression Non-Discrimination (Anton, 2009).

Practice Guidelines Development Process

To address one of the recommendations of the APA TFGIGV (2009), the APA Committee on Sexual Orientation and Gender Diversity (CSOGD; then the Committee on Lesbian, Gay, Bisexual, and Transgender Concerns) and Division 44 (the Society for the Psychological Study of Lesbian, Gay, Bisexual and Transgender Issues) initiated a joint Task Force on Psychological Practice Guidelines with Transgender and Gender Nonconforming People in 2011. Task Force members were selected through an application and review process conducted by the leadership of CSOGD and Division 44. The Task Force included 10 members who had substantial psychological practice expertise with TGNC people. Of the 10 task force members, five individuals identified as TGNC with a range of gender identities and five identified as cisgender. In terms of race/ethnicity, six of the task force members identified as White and four identified as people of color (one Indian American, one Chinese American, one Latina American, and one mixed race).

The Task Force conducted a comprehensive review of the extant scholarship, identified content most pertinent to the practice of psychology with TGNC people, and evaluated the level of evidence to support guidance within each guideline. To ensure the accuracy and comprehensiveness of these *Guidelines*, Task Force members met with TGNC community members and groups and consulted with subject matter experts within and outside of psychology. When the Task Force discovered a lack of professional consensus, every effort was made to include divergent opinions in the field relevant to that issue. When this occurred, the Task Force described the various approaches documented in the literature. Additionally, these *Guidelines* were informed by comments received at multiple presentations held at professional conferences and comments obtained through two cycles of open public comment on earlier *Guideline* drafts.

This document contains 16 guidelines for TGNC psychological practice. Each guideline includes a Rationale section, which reviews relevant scholarship supporting the need for the guideline, and an Application section, which describes how the particular guideline may be applied in psychological practice. The *Guidelines* are organized into five clusters: (a) foundational knowledge and awareness; (b) stigma, discrimination, and barriers to care; (c) life span development; (d) assessment, therapy, and intervention; and (e) research, education, and training.

Funding for this project was provided by Division 44 (Society for the Psychological Study of LGBT Issues); the APA Office on Lesbian, Gay, Bisexual, and Transgender (LGBT) Concerns; a grant from the Committee on Division/APA Relations (CODAPAR); and donations from Randall Ehrbar and Pamela St. Amand. Some members of the Task Force have received compensation through presentations (e.g., honoraria) or royalties (e.g., book contracts) based in part on information contained in these *Guidelines.*

Selection of Evidence

Although the number of publications on the topic of TGNC-affirmative practice has been increasing, this is still an emerging area of scholarly literature and research. When possible, the Task Force relied on peer-reviewed publications, but books, chapters, and reports that do not typically receive a high level of peer review have also been cited when appropriate. These sources are from a diverse range of fields addressing mental health, including psychology, counseling, social work, and psychiatry. Some studies of TGNC people utilize small sample sizes, which limits the generalizability of results. Few studies of TGNC people utilize probability samples or randomized control groups (e.g., Conron et al., 2012; Dhejne et al., 2011). As a result, the Task Force relied primarily on studies using convenience samples, which limits the generalizability of results to the population as a whole, but can be adequate for describing issues and situations that arise within the population.

Foundational Knowledge and Awareness

Guideline 1. Psychologists understand that gender is a nonbinary construct that allows for a range of gender identities and that a person's gender identity may not align with sex assigned at birth.

Rationale. Gender identity is defined as a person's deeply felt, inherent sense of being a girl, woman, or female; a boy, a man, or male; a blend of male or female; or an alternative gender (Bethea & McCollum, 2013; Institute of Medicine [IOM], 2011). In many cultures and religious traditions, gender has been perceived as a binary construct, with mutually exclusive categories of male or female, boy or girl, man or woman (Benjamin, 1966; Mollenkott, 2001; Tanis, 2003). These mutually exclusive categories include an assumption that gender identity is always in alignment with sex assigned at birth (Bethea & McCollum, 2013). For TGNC people, gender identity differs from sex assigned at birth to varying degrees, and may be experienced and expressed outside of the gender binary (Harrison, Grant, & Herman, 2012; Kuper, Nussbaum, & Mustanski, 2012).

Gender as a nonbinary construct has been described and studied for decades (Benjamin, 1966; Herdt, 1994; Kulick, 1998). There is historical evidence of recognition, societal acceptance, and sometimes reverence of diversity in gender identity and gender expression in several different cultures (Coleman et al., 1992; Feinberg, 1996; Miller

& Nichols, 2012; Schmidt, 2003). Many cultures in which gender nonconforming persons and groups were visible were diminished by westernization, colonialism, and systemic inequity (Nanda, 1999). In the 20th century, TGNC expression became medicalized (Hirschfeld, 1910/1991), and medical interventions to treat discordance between a person's sex assigned at birth, secondary sex characteristics, and gender identity became available (Meyerowitz, 2002).

As early as the 1950s, research found variability in how an individual described their[3] gender, with some participants reporting a gender identity different from the culturally defined, mutually exclusive categories of "man" or "woman" (Benjamin, 1966). In several recent large online studies of the TGNC population in the United States, 30% to 40% of participants identified their gender identity as other than man or woman (Harrison et al., 2012; Kuper et al., 2012). Although some studies have cultivated a broader understanding of gender (Conron, Scout, & Austin, 2008), the majority of research has required a forced choice between man and woman, thus failing to represent or depict those with different gender identities (IOM, 2011). Research over the last two decades has demonstrated the existence of a wide spectrum of gender identity and gender expression (Bockting, 2008; Harrison et al., 2012; Kuper et al., 2012), which includes people who identify as either man or woman, neither man nor woman, a blend of man and woman, or a unique gender identity. A person's identification as TGNC can be healthy and self-affirming, and is not inherently pathological (Coleman et al., 2012). However, people may experience distress associated with discordance between their gender identity and their body or sex assigned at birth, as well as societal stigma and discrimination (Coleman et al., 2012).

Between the late 1960s and the early 1990s, health care to alleviate gender dysphoria largely reinforced a binary conceptualization of gender (APA TFGIGV, 2009; Bolin, 1994; Hastings, 1974). At that time, it was considered an ideal outcome for TGNC people to conform to an identity that aligned with either sex assigned at birth or, if not possible, with the "opposite" sex, with a heavy emphasis on blending into the cisgender population or "passing" (APA TFGIGV, 2009; Bolin, 1994; Hastings, 1974). Variance from these options could raise concern for health care providers about a TGNC person's ability to transition successfully. These concerns could act as a barrier to accessing surgery or hormone therapy because medical and mental health care provider endorsement was required before surgery or hormones could be accessed (Berger et al., 1979). Largely because of self-advocacy of TGNC individuals and communities in the 1990s, combined with advances in research and models of trans-affirmative care, there is greater recognition and acknowledgment of a spectrum of gender diversity and corresponding individualized, TGNC-specific health care (Bockting et al., 2006; Coleman et al., 2012).

Application. A nonbinary understanding of gender is fundamental to the provision of affirmative care for TGNC people. Psychologists are encouraged to adapt or modify their understanding of gender, broadening the range of variation viewed as healthy and normative. By understanding the spectrum of gender identities and gender expressions that exist, and that a person's gender identity may not be in full alignment with sex assigned at birth, psychologists can increase their capacity to assist TGNC people, their families, and their communities (Lev, 2004). Respecting and supporting TGNC people in authentically articulating their gender identity and gender expression, as well as their lived experience, can improve TGNC people's health, well-being, and quality of life (Witten, 2003).

Some TGNC people may have limited access to visible, positive TGNC role models. As a result, many TGNC people are isolated and must cope with the stigma of gender nonconformity without guidance or support, worsening the negative effect of stigma on mental health (Fredriksen-Goldsen et al., 2014; Singh, Hays, & Watson, 2011). Psychologists may assist TGNC people in challenging gender norms and stereotypes, and in exploring their unique gender identity and gender expression. TGNC people, partners, families, friends, and communities can benefit from education about the healthy variation of gender identity and gender expression, and the incorrect assumption that gender identity automatically aligns with sex assigned at birth.

Psychologists may model an acceptance of ambiguity as TGNC people develop and explore aspects of their gender, especially in childhood and adolescence. A nonjudgmental stance toward gender nonconformity can help to counteract the pervasive stigma faced by many TGNC people and provide a safe environment to explore gender identity and make informed decisions about gender expression.

Guideline 2. Psychologists understand that gender identity and sexual orientation are distinct but interrelated constructs.

Rationale. The constructs of gender identity and sexual orientation are theoretically and clinically distinct, even though professionals and nonprofessionals frequently conflate them. Although some research suggests a potential link in the development of gender identity and sexual orientation, the mechanisms of such a relationship are unknown (Adelson & American Academy of Child and Adolescent Psychiatry [AACAP] Committee on Quality Issues [CQI], 2012; APA TFGIGV, 2009; A. H. Devor, 2004; Drescher & Byne, 2013). *Sexual orientation* is defined as a person's sexual and/or emotional attraction to another person (Shively & De Cecco, 1977), compared with *gender identity*, which is defined by a person's felt, inherent sense of gender. For most people, gender identity develops earlier than sexual orientation. Gender identity is often established in young toddlerhood (Adelson & AACAP CQI, 2012; Kohlberg, 1966), compared with aware-

[3] The third person plural pronouns "they," "them," and "their" in some instances function in these guidelines as third-person singular pronouns to model a common technique used to avoid the use of gendered pronouns when speaking to or about TGNC people.

ness of same-sex attraction, which often emerges in early adolescence (Adelson & AACAP CQI, 2012; D'Augelli & Hershberger, 1993; Herdt & Boxer, 1993; Ryan, 2009; Savin-Williams & Diamond, 2000). Although gender identity is usually established in childhood, individuals may become aware that their gender identity is not in full alignment with sex assigned at birth in childhood, adolescence, or adulthood. The developmental pathway of gender identity typically includes a progression through multiple stages of awareness, exploration, expression, and identity integration (Bockting & Coleman, 2007; A. H. Devor, 2004; Vanderburgh, 2007). Similarly, a person's sexual orientation may progress through multiple stages of awareness, exploration, and identity through adolescence and into adulthood (Bilodeau & Renn, 2005). Just as some people experience their sexual orientation as being fluid or variable (L. M. Diamond, 2013), some people also experience their gender identity as fluid (Lev, 2004).

The experience of questioning one's gender can create significant confusion for some TGNC people, especially for those who are unfamiliar with the range of gender identities that exist. To explain any discordance they may experience between their sex assigned at birth, related societal expectations, patterns of sexual and romantic attraction, and/or gender role nonconformity and gender identity, some TGNC people may assume that they must be gay, lesbian, bisexual, or queer (Bockting, Benner, & Coleman, 2009). Focusing solely on sexual orientation as the cause for discordance may obscure awareness of a TGNC identity. It can be very important to include sexual orientation and gender identity in the process of identity exploration as well as in the associated decisions about which options will work best for any particular person. In addition, many TGNC adults have disguised or rejected their experience of gender incongruence in childhood or adolescence to conform to societal expectations and minimize their fear of difference (Bockting & Coleman, 2007; Byne et al., 2012).

Because gender and patterns of attraction are used to identify a person's sexual orientation, the articulation of sexual orientation is made more complex when sex assigned at birth is not aligned with gender identity. A person's sexual orientation identity cannot be determined by simply examining external appearance or behavior, but must incorporate a person's identity and self-identification (Broido, 2000).

Application. Psychologists may assist people in differentiating gender identity and sexual orientation. As clients become aware of previously hidden or constrained aspects of their gender identity or sexuality, psychologists may provide acceptance, support, and understanding without making assumptions or imposing a specific sexual orientation or gender identity outcome (APA TFGIGV, 2009). Because of their roles in assessment, treatment, and prevention, psychologists are in a unique position to help TGNC people better understand and integrate the various aspects of their identities. Psychologists may assist TGNC people by introducing and normalizing differences in gender identity and expression. As a TGNC person finds a comfortable way to actualize and express their gender identity, psychologists may notice that previously incongruent aspects of their sexual orientation may become more salient, better integrated, or increasingly egosyntonic (Bockting et al., 2009; H. Devor, 1993; Schleifer, 2006). This process may allow TGNC people the comfort and opportunity to explore attractions or aspects of their sexual orientation that previously had been repressed, hidden, or in conflict with their identity. TGNC people may experience a renewed exploration of their sexual orientation, a widened spectrum of attraction, or a shift in how they identify their sexual orientation in the context of a developing TGNC identity (Coleman, Bockting, & Gooren, 1993; Meier, Pardo, Labuski, & Babcock, 2013; Samons, 2008).

Psychologists may need to provide TGNC people with information about TGNC identities, offering language to describe the discordance and confusion TGNC people may be experiencing. To facilitate TGNC people's learning, psychologists may introduce some of the narratives written by TGNC people that reflect a range of outcomes and developmental processes in exploring and affirming gender identity (e.g., Bornstein & Bergman, 2010; Boylan, 2013; J. Green, 2004; Krieger, 2011; Lawrence, 2014). These resources may potentially aid TGNC people in distinguishing between issues of sexual orientation and gender identity and in locating themselves on the gender spectrum. Psychologists may also educate families and broader community systems (e.g., schools, medical systems) to better understand how gender identity and sexual orientation are different but related; this may be particularly useful when working with youth (Singh & Burnes, 2009; Whitman, 2013). Because gender identity and sexual orientation are often conflated, even by professionals, psychologists are encouraged to carefully examine resources that claim to provide affirmative services for lesbian, gay, bisexual, transgender, and queer (LGBTQ) people, and to confirm which are knowledgeable about and inclusive of the needs of TGNC people before offering referrals or recommendations to TGNC people and their families.

Guideline 3. Psychologists seek to understand how gender identity intersects with the other cultural identities of TGNC people.

Rationale. Gender identity and gender expression may have profound intersections with other aspects of identity (Collins, 2000; Warner, 2008). These aspects may include, but are not limited to, race/ethnicity, age, education, socioeconomic status, immigration status, occupation, disability status, HIV status, sexual orientation, relational status, and religion and/or spiritual affiliation. Whereas some of these aspects of identity may afford privilege, others may create stigma and hinder empowerment (Burnes & Chen, 2012; K. M. de Vries, 2015). In addition, TGNC people who transition may not be prepared for changes in privilege or societal treatment based on gender identity and gender expression. To illustrate, an African American trans man may gain male privilege, but may face racism and

societal stigma particular to African American men. An Asian American/Pacific Islander trans woman may experience the benefit of being perceived as a cisgender woman, but may also experience sexism, misogyny, and objectification particular to Asian American/Pacific Islander cisgender women.

The intersection of multiple identities within TGNC people's lives is complex and may obstruct or facilitate access to necessary support (A. Daley, Solomon, Newman, & Mishna, 2008). TGNC people with less privilege and/or multiple oppressed identities may experience greater stress and restricted access to resources. They may also develop resilience and strength in coping with disadvantages, or may locate community-based resources available to specific groups (e.g., for people living with HIV; Singh et al., 2011). Gender identity affirmation may conflict with religious beliefs or traditions (Bockting & Cesaretti, 2001). Finding an affirmative expression of their religious and spiritual beliefs and traditions, including positive relationships with religious leaders, can be an important resource for TGNC people (Glaser, 2008; Porter, Ronneberg, & Witten, 2013; Xavier, 2000).

Application. In practice, psychologists strive to recognize the salient multiple and intersecting identities of TGNC people that influence coping, discrimination, and resilience (Burnes & Chen, 2012). Improved rapport and therapeutic alliance are likely to develop when psychologists avoid overemphasizing gender identity and gender expression when not directly relevant to TGNC people's needs and concerns. Even when gender identity is the main focus of care, psychologists are encouraged to understand that a TGNC person's experience of gender may also be shaped by other important aspects of identity (e.g., age, race/ethnicity, sexual orientation), and that the salience of different aspects of identity may evolve as the person continues psychosocial development across the life span, regardless of whether they complete a social or medical transition.

At times, a TGNC person's intersection of identities may result in conflict, such as a person's struggle to integrate gender identity with religious and/or spiritual upbringing and beliefs (Kidd & Witten, 2008; Levy & Lo, 2013; Rodriguez & Follins, 2012). Psychologists may aid TGNC people in understanding and integrating identities that may be differently privileged within systems of power and systemic inequity (Burnes & Chen, 2012). Psychologists may also highlight and strengthen the development of TGNC people's competencies and resilience as they learn to manage the intersection of stigmatized identities (Singh, 2012).

Guideline 4. Psychologists are aware of how their attitudes about and knowledge of gender identity and gender expression may affect the quality of care they provide to TGNC people and their families.

Rationale. Psychologists, like other members of society, come to their personal understanding and acceptance of different aspects of human diversity through a process of socialization. Psychologists' cultural biases, as well as the cultural differences between psychologists and their clients, have a clinical impact (Israel, Gorcheva, Burnes, & Walther, 2008; Vasquez, 2007). The assumptions, biases, and attitudes psychologists hold regarding TGNC people and gender identity and/or gender expression can affect the quality of services psychologists provide and their ability to develop an effective therapeutic alliance (Bess & Stabb, 2009; Rachlin, 2002). In addition, a lack of knowledge or training in providing affirmative care to TGNC people can limit a psychologist's effectiveness and perpetuate barriers to care (Bess & Stabb, 2009; Rachlin, 2002). Psychologists experienced with lesbian, gay, or bisexual (LGB) people may not be familiar with the unique needs of TGNC people (Israel, 2005; Israel et al., 2008). In community surveys, TGNC people have reported that many mental health care providers lack basic knowledge and skills relevant to care of TGNC people (Bradford, Xavier, Hendricks, Rives, & Honnold, 2007; Xavier, Bobbin, Singer, & Budd, 2005) and receive little training to prepare them to work with TGNC people (APA TFGIGV, 2009; Lurie, 2005). The National Transgender Discrimination Survey (Grant et al., 2011) reported that 50% of TGNC respondents shared that they had to educate their health care providers about TGNC care, 28% postponed seeking medical care due to antitrans bias, and 19% were refused care due to discrimination.

The APA ethics code (APA, 2010) specifies that psychologists practice in areas only within the boundaries of their competence (Standard 2.01), participate in proactive and consistent ways to enhance their competence (Standard 2.03), and base their work upon established scientific and professional knowledge (Standard 2.04). Competence in working with TGNC people can be developed through a range of activities, such as education, training, supervised experience, consultation, study, or professional experience.

Application. Psychologists may engage in practice with TGNC people in various ways; therefore, the depth and level of knowledge and competence required by a psychologist depends on the type and complexity of service offered to TGNC people. Services that psychologists provide to TGNC people require a basic understanding of the population and its needs, as well as the ability to respectfully interact in a trans-affirmative manner (L. Carroll, 2010).

APA emphasizes the use of evidence-based practice (APA Presidential Task Force on Evidence-Based Practice, 2006). Given how easily assumptions or stereotypes could influence treatment, evidence-based practice may be especially relevant to psychological practice with TGNC people. Until evidence-based practices are developed specifically for TGNC people, psychologists are encouraged to utilize existing evidence-based practices in the care they provide. APA also promotes collaboration with clients concerning clinical decisions, including issues related to costs, potential benefits, and the existing options and resources related to treatment (APA Presidential Task Force on Evidence-Based Practice, 2006). TGNC people could benefit from such collaboration and active engagement in decision

making, given the historical disenfranchisement and disempowerment of TGNC people in health care.

In an effort to develop competence in working with TGNC people, psychologists are encouraged to examine their personal beliefs regarding gender and sexuality, gender stereotypes, and TGNC identities, in addition to identifying gaps in their own knowledge, understanding, and acceptance (American Counseling Association [ACA], 2010). This examination may include exploring one's own gender identity and gendered experiences related to privilege, power, or marginalization, as well as seeking consultation and training with psychologists who have expertise in working with TGNC people and communities.

Psychologists are further encouraged to develop competence in working with TGNC people and their families by seeking up-to-date basic knowledge and understanding of gender identity and expression, and learning how to interact with TGNC people and their families respectfully and without judgment. Competence in working with TGNC people may be achieved and maintained in formal and informal ways, ranging from exposure in the curriculum of training programs for future psychologists and continuing education at professional conferences, to affirmative involvement as allies in the TGNC community. Beyond acquiring general competence, psychologists who choose to specialize in working with TGNC people presenting with gender-identity-related concerns are strongly encouraged to obtain advanced training, consultation, and professional experience (ACA, 2010; Coleman et al., 2012).

Psychologists may gain knowledge about the TGNC community and become more familiar with the complex social issues that affect the lives of TGNC people through first-hand experiences (e.g., attending community meetings and conferences, reading narratives written by TGNC people). If psychologists have not yet developed competence in working with TGNC people, it is recommended that they refer TGNC people to other psychologists or providers who are knowledgeable and able to provide trans-affirmative care.

Stigma, Discrimination, and Barriers to Care

Guideline 5. Psychologists recognize how stigma, prejudice, discrimination, and violence affect the health and well-being of TGNC people.

Rationale. Many TGNC people experience discrimination, ranging from subtle to severe, when accessing housing, health care, employment, education, public assistance, and other social services (Bazargan & Galvan, 2012; Bradford, Reisner, Honnold, & Xavier, 2013; Dispenza, Watson, Chung, & Brack, 2012; Grant et al., 2011). Discrimination can include assuming a person's assigned sex at birth is fully aligned with that person's gender identity, not using a person's preferred name or pronoun, asking TGNC people inappropriate questions about their bodies, or making the assumption that psychopathology exists given a specific gender identity or gender expression (Nadal, Rivera, & Corpus, 2010; Nadal, Skolnik, & Wong, 2012). Discrimination may also include refusing access to housing or employment or extreme acts of violence (e.g., sexual assault, murder). TGNC people who hold multiple marginalized identities are more vulnerable to discrimination and violence. TGNC women and people of color disproportionately experience severe forms of violence and discrimination, including police violence, and are less likely to receive help from law enforcement (Edelman, 2011; National Coalition of Anti-Violence Programs, 2011; Saffin, 2011).

TGNC people are at risk of experiencing antitrans prejudice and discrimination in educational settings. In a national representative sample of 7,898 LGBT youth in K-12 settings, 55.2% of participants reported verbal harassment, 22.7% reported physical harassment, and 11.4% reported physical assault based on their gender expression (Kosciw, Greytak, Palmer, & Boesen, 2014). In a national community survey of TGNC adults, 15% reported prematurely leaving educational settings ranging from kindergarten through college as a result of harassment (Grant et al., 2011). Many schools do not include gender identity and gender expression in their school nondiscrimination policies; this leaves TGNC youth without needed protections from bullying and aggression in schools (Singh & Jackson, 2012). TGNC youth in rural settings may be even more vulnerable to bullying and hostility in their school environments due to antitrans prejudice (Kosciw et al., 2014).

Inequities in educational settings and other forms of TGNC-related discrimination may contribute to the significant economic disparities TGNC people have reported. Grant and colleagues (2011) found that TGNC people were four times more likely to have a household income of less than $10,000 compared with cisgender people, and almost half of a sample of TGNC older adults reported a household income at or below 200% of poverty (Fredriksen-Goldsen et al., 2014). TGNC people often face workplace discrimination both when seeking and maintaining employment (Brewster, Velez, Mennicke, & Tebbe, 2014; Dispenza et al., 2012; Mizock & Mueser, 2014). In a nonrepresentative national study of TGNC people, 90% reported having "directly experienced harassment or mistreatment at work and felt forced to take protective actions that negatively impacted their careers or their well-being, such as hiding who they were to avoid workplace repercussions" (Grant et al., 2011, p. 56). In addition, 78% of respondents reported experiencing some kind of direct mistreatment or discrimination at work (Grant et al., 2011). Employment discrimination may be related to stigma based on a TGNC person's appearance, discrepancies in identity documentation, or being unable to provide job references linked to that person's pretransition name or gender presentation (Bender-Baird, 2011).

Issues of employment discrimination and workplace harassment are particularly salient for TGNC military personnel and veterans. Currently, TGNC people cannot serve openly in the U.S. military. Military regulations cite "transsexualism" as a medical exclusion from service (Department of Defense, 2011; Elders & Steinman, 2014). When

enlisted, TGNC military personnel are faced with very difficult decisions related to coming out, transition, and seeking appropriate medical and mental health care, which may significantly impact or end their military careers. Not surprisingly, research documents very high rates of suicidal ideation and behavior among TGNC military and veteran populations (Blosnich et al., 2013; Matarazzo et al., 2014). Being open about their TGNC identity with health care providers can carry risk for TGNC military personnel (OutServe-Servicemembers Legal Defense Network, n.d.). Barriers to accessing health care noted by TGNC veterans include viewing the VA health care system as an extension of the military, perceiving the VA as an unwelcoming environment, and fearing providers' negative reactions to their identity (Sherman, Kauth, Shipherd, & Street, 2014; Shipherd, Mizock, Maguen, & Green, 2012). A recent study shows 28% of LGBT veterans perceived their VA as welcoming and one third as unwelcoming (Sherman et al., 2014). Multiple initiatives are underway throughout the VA system to improve the quality and sensitivity of services to LGBT veterans.

Given widespread workplace discrimination and possible dismissal following transition, TGNC people may engage in sex work or survival sex (e.g., trading sex for food), or sell drugs to generate income (Grant et al., 2011; Hwahng & Nuttbrock, 2007; Operario, Soma, & Underhill, 2008; Stanley, 2011). This increases the potential for negative interactions with the legal system, such as harassment by the police, bribery, extortion, and arrest (Edelman, 2011; Testa et al., 2012), as well as increased likelihood of mental health symptoms and greater health risks, such as higher incidence of sexually transmitted infections, including HIV (Nemoto, Operario, Keatley, & Villegas, 2004).

Incarcerated TGNC people report harassment, isolation, forced sex, and physical assault, both by prison personnel and other inmates (American Civil Liberties Union National Prison Project, 2005; Brotheim, 2013; C. Daley, 2005). In sex-segregated facilities, TGNC people may be subjected to involuntary solitary confinement (also called "administrative segregation"), which can lead to severe negative mental and physical health consequences and may block access to services (Gallagher, 2014; National Center for Transgender Equality, 2012). Another area of concern is for TGNC immigrants and refugees. TGNC people in detention centers may not be granted access to necessary care and experience significant rates of assault and violence in these facilities (Gruberg, 2013). TGNC people may seek asylum in the United States to escape danger as a direct result of lack of protections in their country of origin (APA Presidential Task Force on Immigration, 2012; Cerezo, Morales, Quintero, & Rothman, 2014; Morales, 2013).

TGNC people have difficulty accessing necessary health care (Fredriksen-Goldsen et al., 2014; Lambda Legal, 2012) and often feel unsafe sharing their gender identity or their experiences of antitrans prejudice and discrimination due to historical and current discrimination from health care providers (Grant et al., 2011; Lurie, 2005; Singh & McKleroy, 2011). Even when TGNC people have health insurance, plans may explicitly exclude coverage related to gender transition (e.g., hormone therapy, surgery). TGNC people may also have difficulty accessing trans-affirmative primary health care if coverage for procedures is denied based on gender. For example, trans men may be excluded from necessary gynecological care based on the assumption that men do not need these services. These barriers often lead to a lack of preventive health care for TGNC people (Fredriksen-Goldsen et al., 2014; Lambda Legal, 2012). Although the landscape is beginning to change with the recent revision of Medicare policy (National Center for Transgender Equality, 2014) and changes to state laws (Transgender Law Center, n.d.), many TGNC people are still likely to have little to no access to TGNC-related health care as a result of the exclusions in their insurance.

Application. Awareness of and sensitivity to the effects of antitrans prejudice and discrimination can assist psychologists in assessing, treating, and advocating for their TGNC clients. When a TGNC person faces discrimination based on gender identity or gender expression, psychologists may facilitate emotional processing of these experiences and work with the person to identify supportive resources and possible courses of action. Specific needs of TGNC people might vary from developing self-advocacy strategies, to navigating public spaces, to seeking legal recourse for harassment and discrimination in social services and other systems. Additionally, TGNC people who have been traumatized by physical or emotional violence may need therapeutic support.

Psychologists may be able to assist TGNC people in accessing relevant social service systems. For example, psychologists may be able to assist in identifying health care providers and housing resources that are affirming and affordable, or locating affirming religious and spiritual communities (Glaser, 2008; Porter et al., 2013). Psychologists may also assist in furnishing documentation or official correspondence that affirms gender identity for the purpose of accessing appropriate public accommodations, such as bathroom use or housing (Lev, 2009; W. J. Meyer, 2009).

Additionally, psychologists may identify appropriate resources, information, and services to help TGNC people in addressing workplace discrimination, including strategies during a social and/or medical transition for identity disclosure at work. For those who are seeking employment, psychologists may help strategize about how and whether to share information about gender history. Psychologists may also work with employers to develop supportive policies for workplace gender transition or to develop training to help employees adjust to the transition of a coworker.

For TGNC military and veteran populations, psychologists may help to address the emotional impact of navigating TGNC identity development in the military system. Psychologists are encouraged to be aware that issues of confidentiality may be particularly sensitive with active duty or reserve status service members, as the consequences of being identified as TGNC may prevent the client's disclosure of gender identity in treatment.

In educational settings, psychologists may advocate for TGNC youth on a number of levels (APA & National

Association of School Psychologists, 2014; Boulder Valley School District, 2012). Psychologists may consult with administrators, teachers, and school counselors to provide resources and trainings on antitrans prejudice and developing safer school environments for TGNC students (Singh & Burnes, 2009). Peer support from other TGNC people has been shown to buffer the negative effect of stigma on mental health (Bockting et al., 2013). As such, psychologists may consider and develop peer-based interventions to facilitate greater understanding and respectful treatment of TGNC youth by cisgender peers (Case & Meier, 2014). Psychologists may work with TGNC youth and their families to identify relevant resources, such as school policies that protect gender identity and gender expression (APA & National Association of School Psychologists, 2014; Gonzalez & McNulty, 2010), referrals to TGNC-affirmative organizations, and online resources, which may be especially helpful for TGNC youth in rural settings.

Guideline 6. Psychologists strive to recognize the influence of institutional barriers on the lives of TGNC people and to assist in developing TGNC-affirmative environments.

Rationale. Antitrans prejudice and the adherence of mainstream society to the gender binary adversely affect TGNC people within their families, schools, health care, legal systems, workplaces, religious traditions, and communities (American Civil Liberties Union National Prison Project, 2005; Bradford et al., 2013; Brewster et al., 2014; Levy & Lo, 2013; McGuire, Anderson, & Toomey, 2010). TGNC people face challenges accessing gender-inclusive restrooms, which may result in discomfort when being forced to use a men's or women's restroom (Transgender Law Center, 2005). In addition to the emotional distress the forced binary choice that public restrooms may create for some, TGNC people are frequently concerned with others' reactions to their presence in public restrooms, including potential discrimination, harassment, and violence (Herman, 2013).

Many TGNC people may be distrustful of care providers due to previous experiences of being pathologized (Benson, 2013). Experiences of discrimination and prejudice with health care providers may be complicated by power differentials within the therapeutic relationship that may greatly affect or complicate the care that TGNC people experience. TGNC people have routinely been asked to obtain an endorsement letter from a psychologist attesting to the stability of their gender identity as a prerequisite to access an endocrinologist, surgeon, or legal institution (e.g., driver's license bureau; Lev, 2009). The need for such required documentation from a psychologist may influence rapport, resulting in TGNC people fearing prejudicial treatment in which this documentation is withheld or delayed by the treating provider (Bouman et al., 2014). Whether a TGNC person has personally experienced interactions with providers as disempowering or has learned from community members to expect such a dynamic, psychologists are encouraged to be prepared for TGNC people to be very cautious when entering into a therapeutic relationship. When TGNC people feel validated and empowered within the environment in which a psychologist practices, the therapeutic relationship will benefit and the person may be more willing to explore their authentic selves and share uncertainties and ambiguities that are a common part of TGNC identity development.

Application. Because many TGNC people experience antitrans prejudice or discrimination, psychologists are encouraged to ensure that their work settings are welcoming and respectful of TGNC people, and to be mindful of what TGNC people may perceive as unwelcoming. To do so, psychologists may educate themselves about the many ways that cisgender privilege and antitrans prejudice may be expressed. Psychologists may also have specific conversations with TGNC people about their experiences of the mental health system and implement feedback to foster TGNC-affirmative environments. As a result, when TGNC people access various treatment settings and public spaces, they may experience less harm, disempowerment, or pathologization, and thus will be more likely to avail themselves of resources and support.

Psychologists are encouraged to be proactive in considering how overt or subtle cues in their workplaces and other environments may affect the comfort and safety of TGNC people. To increase the comfort of TGNC people, psychologists are encouraged to display TGNC-affirmative resources in waiting areas and to avoid the display of items that reflect antitrans attitudes (Lev, 2009). Psychologists are encouraged to examine how their language (e.g., use of incorrect pronouns and names) may reinforce the gender binary in overt or subtle and unintentional ways (Smith, Shin, & Officer, 2012). It may be helpful for psychologists to provide training for support staff on how to respectfully interact with TGNC people. A psychologist may consider making changes to paperwork, forms, or outreach materials to ensure that these materials are more inclusive of TGNC people (Spade, 2011b). For example, demographic questionnaires can communicate respect through the use of inclusive language and the inclusion of a range of gender identities. In addition, psychologists may also work within their institutions to advocate for restrooms that are inclusive and accessible for people of all gender identities and/or gender expressions.

When working with TGNC people in a variety of care and institutional settings (e.g., inpatient medical and psychiatric hospitals, substance abuse treatment settings, nursing homes, foster care, religious communities, military and VA health care settings, and prisons), psychologists may become liaisons and advocates for TGNC people's mental health needs and for respectful treatment that addresses their gender identity in an affirming manner. In playing this role, psychologists may find guidance and best practices that have been published for particular institutional contexts to be helpful (e.g., Department of Veterans Affairs, Veterans' Health Administration, 2013; Glezer, McNiel, & Binder, 2013; Merksamer, 2011).

Guideline 7: Psychologists understand the need to promote social change that reduces the negative effects of stigma on the health and well-being of TGNC people.

Rationale. The lack of public policy that addresses the needs of TGNC people creates significant hardships for them (Taylor, 2007). Although there have been major advances in legal protections for TGNC people in recent years (Buzuvis, 2013; Harvard Law Review Association, 2013), many TGNC people are still not afforded protections from discrimination on the basis of gender identity or expression (National LGBTQ Task Force, 2013; Taylor, 2007). For instance, in many states, TGNC people do not have employment or housing protections and may be fired or lose their housing based on their gender identity. Many policies that protect the rights of cisgender people, including LGB people, do not protect the rights of TGNC people (Currah, & Minter, 2000; Spade, 2011a).

TGNC people can experience challenges obtaining gender-affirming identity documentation (e.g., birth certificate, passport, social security card, driver's license). For TGNC people experiencing poverty or economic hardship, requirements for obtaining this documentation may be impossible to meet, in part due to the difficulty of securing employment without identity documentation that aligns with their gender identity and gender expression (Sheridan, 2009). Additionally, systemic barriers related to binary gender identification systems prevent some TGNC people from changing their documents, including those who are incarcerated, undocumented immigrants, and people who live in jurisdictions that explicitly forbid such changes (Spade, 2006). Documentation requirements can also assume a universal TGNC experience that marginalizes some TGNC people, especially those who do not undergo a medical transition. This may affect a TGNC person's social and psychological well-being and interfere with accessing employment, education, housing and shelter, health care, public benefits, and basic life management resources (e.g., opening a bank account).

Application. Psychologists are encouraged to inform public policy to reduce negative systemic impact on TGNC people and to promote positive social change. Psychologists are encouraged to identify and improve systems that permit violence; educational, employment, and housing discrimination; lack of access to health care; unequal access to other vital resources; and other instances of systemic inequity that TGNC people experience (ACA, 2010). Many TGNC people experience stressors from constant barriers, inequitable treatment, and forced release of sensitive and private information about their bodies and their lives (Hendricks & Testa, 2012). To obtain proper identity documentation, TGNC people may be required to provide court orders, proof of having had surgery, and documentation of psychotherapy or a psychiatric diagnosis. Psychologists may assist TGNC people by normalizing their reactions of fatigue and traumatization while interacting with legal systems and requirements; TGNC people may also benefit from guidance about alternate avenues of recourse, self-advocacy, or appeal. When TGNC people feel that it is unsafe to advocate for themselves, psychologists may work with their clients to access appropriate resources in the community.

Psychologists are encouraged to be sensitive to the challenges of attaining gender-affirming identity documentation and how the receipt or denial of such documentation may affect social and psychological well-being, the person's ability to obtain education and employment, find safe housing, access public benefits, obtain student loans, and access health insurance. It may be of significant assistance for psychologists to understand and offer information about the process of a legal name change, gender marker change on identification, or the process for accessing other gender-affirming documents. Psychologists may consult the National Center for Transgender Equality, the Sylvia Rivera Law Project, or the Transgender Law Center for additional information on identity documentation for TGNC people.

Psychologists may choose to become involved with an organization that seeks to revise law and public policy to better protect the rights and dignities of TGNC people. Psychologists may participate at the local, state, or national level to support TGNC-affirmative health care accessibility, human rights in sex-segregated facilities, or policy change regarding gender-affirming identity documentation. Psychologists working in institutional settings may also expand their roles to work as collaborative advocates for TGNC people (Gonzalez & McNulty, 2010). Psychologists are encouraged to provide written affirmations supporting TGNC people and their gender identity so that they may access necessary services (e.g., hormone therapy).

Life Span Development

Guideline 8. Psychologists working with gender-questioning [4] and TGNC youth understand the different developmental needs of children and adolescents, and that not all youth will persist in a TGNC identity into adulthood.

Rationale. Many children develop stability (constancy across time) in their gender identity between Ages 3 to 4 (Kohlberg, 1966), although gender consistency (recognition that gender remains the same across situations) often does not occur until Ages 4 to 7 (Siegal & Robinson, 1987). Children who demonstrate gender nonconformity in preschool and early elementary years may not follow this trajectory (Zucker & Bradley, 1995). Existing research suggests that between 12% and 50% of children diagnosed with gender dysphoria may persist in their identification with a gender different than sex assigned at birth into late adolescence and young adulthood (Drummond, Bradley,

[4] Gender-questioning youth are differentiated from TGNC youth in this section of the guidelines. Gender-questioning youth may be questioning or exploring their gender identity but have not yet developed a TGNC identity. As such, they may not be eligible for some services that would be offered to TGNC youth. Gender-questioning youth are included here because gender questioning may lead to a TGNC identity.

Peterson-Badaali, & Zucker, 2008; Steensma, McGuire, Kreukels, Beekman, & Cohen-Kettenis, 2013; Wallien & Cohen-Kettenis, 2008). However, several research studies categorized 30% to 62% of youth who did not return to the clinic for medical intervention after initial assessment, and whose gender identity may be unknown, as "desisters" who no longer identified with a gender different than sex assigned at birth (Steensma et al., 2013; Wallien & Cohen-Kettenis, 2008; Zucker, 2008a). As a result, this research runs a strong risk of inflating estimates of the number of youth who do not persist with a TGNC identity. Research has suggested that children who identify more intensely with a gender different than sex assigned at birth are more likely to persist in this gender identification into adolescence (Steensma et al., 2013), and that when gender dysphoria persists through childhood and intensifies into adolescence, the likelihood of long-term TGNC identification increases (A. L. de Vries, Steensma, Doreleijers, & Cohen-Kettenis, 2011; Steensma et al., 2013; Wallien & Cohen-Kettenis, 2008; Zucker, 2008b). Gender-questioning children who do not persist may be more likely to later identify as gay or lesbian than non-gender-questioning children (Bailey & Zucker, 1995; Drescher, 2014; Wallien & Cohen-Kettenis, 2008).

A clear distinction between care of TGNC and gender-questioning children and adolescents exists in the literature. Due to the evidence that not all children persist in a TGNC identity into adolescence or adulthood, and because no approach to working with TGNC children has been adequately, empirically validated, consensus does not exist regarding best practice with prepubertal children. Lack of consensus about the preferred approach to treatment may be due in part to divergent ideas regarding what constitutes optimal treatment outcomes for TGNC and gender-questioning youth (Hembree et al., 2009). Two distinct approaches exist to address gender identity concerns in children (Hill, Menvielle, Sica, & Johnson, 2010; Wallace & Russell, 2013), with some authors subdividing one of the approaches to suggest three (Byne et al., 2012; Drescher, 2014; Stein, 2012).

One approach encourages an affirmation and acceptance of children's expressed gender identity. This may include assisting children to socially transition and to begin medical transition when their bodies have physically developed, or allowing a child's gender identity to unfold without expectation of a specific outcome (A. L. de Vries & Cohen-Kettenis, 2012; Edwards-Leeper & Spack, 2012; Ehrensaft, 2012; Hidalgo et al., 2013; Tishelman et al., 2015). Clinicians using this approach believe that an open exploration and affirmation will assist children to develop coping strategies and emotional tools to integrate a positive TGNC identity should gender questioning persist (Edwards-Leeper & Spack, 2012).

In the second approach, children are encouraged to embrace their given bodies and to align with their assigned gender roles. This includes endorsing and supporting behaviors and attitudes that align with the child's sex assigned at birth prior to the onset of puberty (Zucker, 2008a; Zucker, Wood, Singh, & Bradley, 2012). Clinicians using this approach believe that undergoing multiple medical interventions and living as a TGNC person in a world that stigmatizes gender nonconformity is a less desirable outcome than one in which children may be assisted to happily align with their sex assigned at birth (Zucker et al., 2012). Consensus does not exist regarding whether this approach may provide benefit (Zucker, 2008a; Zucker et al., 2012) or may cause harm or lead to psychosocial adversities (Hill et al., 2010; Pyne, 2014; Travers et al., 2012; Wallace & Russell, 2013). When addressing psychological interventions for children and adolescents, the World Professional Association for Transgender Health Standards of Care identify interventions "aimed at trying to change gender identity and expression to become more congruent with sex assigned at birth" as unethical (Coleman et al., 2012, p. 175). It is hoped that future research will offer improved guidance in this area of practice (Adelson & AACAP CQI, 2012; Malpas, 2011).

Much greater consensus exists regarding practice with adolescents. Adolescents presenting with gender identity concerns bring their own set of unique challenges. This may include having a late-onset (i.e., postpubertal) presentation of gender nonconforming identification, with no history of gender role nonconformity or gender questioning in childhood (Edwards-Leeper & Spack, 2012). Complicating their clinical presentation, many gender-questioning adolescents also present with co-occurring psychological concerns, such as suicidal ideation, self-injurious behaviors (Liu & Mustanski, 2012; Mustanski, Garofalo, & Emerson, 2010), drug and alcohol use (Garofalo et al., 2006), and autism spectrum disorders (A. L. de Vries, Noens, Cohen-Kettenis, van Berckelaer-Onnes, & Doreleijers, 2010; Jones et al., 2012). Additionally, adolescents can become intensely focused on their immediate desires, resulting in outward displays of frustration and resentment when faced with any delay in receiving the medical treatment from which they feel they would benefit and to which they feel entitled (Angello, 2013; Edwards-Leeper & Spack, 2012). This intense focus on immediate needs may create challenges in assuring that adolescents are cognitively and emotionally able to make life-altering decisions to change their name or gender marker, begin hormone therapy (which may affect fertility), or pursue surgery.

Nonetheless, there is greater consensus that treatment approaches for adolescents affirm an adolescents' gender identity (Coleman et al., 2012). Treatment options for adolescents extend beyond social approaches to include medical approaches. One particular medical intervention involves the use of puberty-suppressing medication or "blockers" (GnRH analogue), which is a reversible medical intervention used to delay puberty for appropriately screened adolescents with gender dysphoria (Coleman et al., 2012; A. L. C. de Vries et al., 2014; Edwards-Leeper, & Spack, 2012). Because of their age, other medical interventions may also become available to adolescents, and psychologists are frequently consulted to provide an assessment of whether such procedures would be advisable (Coleman et al., 2012).

Application. Psychologists working with TGNC and gender-questioning youth are encouraged to regularly review the most current literature in this area, recognizing the limited available research regarding the potential benefits and risks of different treatment approaches for children and for adolescents. Psychologists are encouraged to offer parents and guardians clear information about available treatment approaches, regardless of the specific approach chosen by the psychologist. Psychologists are encouraged to provide psychological service to TGNC and gender-questioning children and adolescents that draws from empirically validated literature when available, recognizing the influence psychologists' values and beliefs may have on the treatment approaches they select (Ehrbar & Gorton, 2010). Psychologists are also encouraged to remain aware that what one youth and/or parent may be seeking in a therapeutic relationship may not coincide with a clinician's approach (Brill & Pepper, 2008). In cases in which a youth and/or parent identify different preferred treatment outcomes than a clinician, it may not be clinically appropriate for the clinician to continue working with the youth and family, and alternative options, including referral, might be considered. Psychologists may also find themselves navigating family systems in which youth and their caregivers are seeking different treatment outcomes (Edwards-Leeper & Spack, 2012). Psychologists are encouraged to carefully reflect on their personal values and beliefs about gender identity development in conjunction with the available research, and to keep the best interest of the child or adolescent at the forefront of their clinical decisions at all times.

Because gender nonconformity may be transient for younger children in particular, the psychologist's role may be to help support children and their families through the process of exploration and self-identification (Ehrensaft, 2012). Additionally, psychologists may provide parents with information about possible long-term trajectories children may take in regard to their gender identity, along with the available medical interventions for adolescents whose TGNC identification persists (Edwards-Leeper & Spack, 2012).

When working with adolescents, psychologists are encouraged to recognize that some TGNC adolescents will not have a strong history of childhood gender role nonconformity or gender dysphoria either by self-report or family observation (Edwards-Leeper & Spack, 2012). Some of these adolescents may have withheld their feelings of gender nonconformity out of a fear of rejection, confusion, conflating gender identity and sexual orientation, or a lack of awareness of the option to identify as TGNC. Parents of these adolescents may need additional assistance in understanding and supporting their youth, given that late-onset gender dysphoria and TGNC identification may come as a significant surprise. Moving more slowly and cautiously in these cases is often advisable (Edwards-Leeper & Spack, 2012). Given the possibility of adolescents' intense focus on immediate desires and strong reactions to perceived delays or barriers, psychologists are encouraged to validate these concerns and the desire to move through the process quickly while also remaining thoughtful and deliberate in treatment. Adolescents and their families may need support in tolerating ambiguity and uncertainty with regard to gender identity and its development (Brill & Pepper, 2008). It is encouraged that care should be taken not to foreclose this process.

For adolescents who exhibit a long history of gender nonconformity, psychologists may inform parents that the adolescent's self-affirmed gender identity is most likely stable (A. L. de Vries et al., 2011). The clinical needs of these adolescents may be different than those who are in the initial phases of exploring or questioning their gender identity. Psychologists are encouraged to complete a comprehensive evaluation and ensure the adolescent's and family's readiness to progress while also avoiding unnecessary delay for those who are ready to move forward.

Psychologists working with TGNC and gender-questioning youth are encouraged to become familiar with medical treatment options for adolescents (e.g., puberty-suppressing medication, hormone therapy) and work collaboratively with medical providers to provide appropriate care to clients. Because the ongoing involvement of a knowledgeable mental health provider is encouraged due to the psychosocial implications, and is often also a required part of the medical treatment regimen that may be offered to TGNC adolescents (Coleman et al., 2012; Hembree et al., 2009), psychologists often play an essential role in assisting in this process.

Psychologists may encourage parents and caregivers to involve youth in developmentally appropriate decision making about their education, health care, and peer networks, as these relate to children's and adolescents' gender identity and gender expression (Ryan, Russell, Huebner, Diaz, & Sanchez, 2010). Psychologists are also encouraged to educate themselves about the advantages and disadvantages of social transition during childhood and adolescence, and to discuss these factors with both their young clients and clients' parents. Emphasizing to parents the importance of allowing their child the freedom to return to a gender identity that aligns with sex assigned at birth or another gender identity at any point cannot be overstated, particularly given the research that suggests that not all young gender nonconforming children will ultimately express a gender identity different from that assigned at birth (Wallien, & Cohen-Kettenis, 2008; Zucker & Bradley, 1995). Psychologists are encouraged to acknowledge and explore the fear and burden of responsibility that parents and caregivers may feel as they make decisions about the health of their child or adolescent (Grossman, D'Augelli, Howell, & Hubbard, 2006). Parents and caregivers may benefit from a supportive environment to discuss feelings of isolation, explore loss and grief they may experience, vent anger and frustration at systems that disrespect or discriminate against them and their youth, and learn how to communicate with others about their child's or adolescent's gender identity or gender expression (Brill & Pepper, 2008).

Guideline 9. Psychologists strive to understand both the particular challenges that TGNC elders experience and the resilience they can develop.

Rationale. Little research has been conducted about TGNC elders, leaving much to be discovered about this life stage for TGNC people (Auldridge, Tamar-Mattis, Kennedy, Ames, & Tobin, 2012). Socialization into gender role behaviors and expectations based on sex assigned at birth, as well as the extent to which TGNC people adhere to these societal standards, is influenced by the chronological age at which a person self-identifies as TGNC, the age at which a person comes out or socially and/or medically transitions (Birren & Schaie, 2006; Bockting & Coleman, 2007; Cavanaugh & Blanchard-Fields, 2010; Nuttbrock et al., 2010; Wahl, Iwarsson, & Oswald, 2012), and a person's generational cohort (e.g., 1950 vs. 2010; Fredriksen-Goldsen et al., 2011).

Even decades after a medical or social transition, TGNC elders may still subscribe to the predominant gender role expectations that existed at the time of their transition (Knochel, Croghan, Moore, & Quam, 2011). Prior to the 1980s, TGNC people who transitioned were strongly encouraged by providers to pass in society as cisgender and heterosexual and to avoid associating with other TGNC people (Benjamin, 1966; R. Green & Money, 1969; Hastings, 1974; Hastings & Markland, 1978). Even TGNC elders who were comfortable telling others about their TGNC identity when they were younger may choose not to reveal their identity at a later stage of life (Ekins & King, 2005; Ippolito & Witten, 2014). Elders' unwillingness to disclose their TGNC identity can result from feelings of physical vulnerability or increased reliance on others who may discriminate against them or treat them poorly as a result of their gender identity (Bockting & Coleman, 2007), especially if the elder resides in an institutionalized setting (i.e., nursing home, assisted living facility) and relies on others for many daily needs (Auldridge et al., 2012). TGNC elders are also at a heightened risk for depression, suicidal ideation, and loneliness compared with LGB elders (Auldridge et al., 2012; Fredriksen-Goldsen et al., 2011).

A Transgender Law Center survey found that TGNC and LGB elders had less financial well-being than their younger cohorts, despite having a higher than average educational level for their age group compared with the general population (Hartzell, Frazer, Wertz, & Davis, 2009). Survey research has also revealed that TGNC elders experience underemployment and gaps in employment, often due to discrimination (Auldridge et al., 2012; Beemyn & Rankin, 2011; Factor & Rothblum, 2007). In the past, some TGNC people with established careers may have been encouraged by service providers to find new careers or jobs to avoid undergoing a gender transition at work or being identified as TGNC, potentially leading to a significant loss of income and occupational identity (Cook-Daniels, 2006). Obstacles to employment can increase economic disparities that result in increased needs for supportive housing and other social services (National Center for Transgender Equality, 2012; Services and Advocacy for GLBT Elders & National Center for Transgender Equality, 2012).

TGNC elders may face obstacles to seeking or accessing resources that support their physical, financial, or emotional well-being. For instance, they may be concerned about applying for social security benefits, fearing that their TGNC identity may become known (Hartzell et al., 2009). A TGNC elder may avoid medical care, increasing the likelihood of later needing a higher level of medical care (e.g., home-based care, assisted living, or nursing home) than their same-age cisgender peers (Hartzell et al., 2009; Ippolito & Witten, 2014; Mikalson et al., 2012). Nursing homes and assisted living facilities are rarely sensitive to the unique medical needs of TGNC elders (National Senior Citizens Law Center, 2011). Some TGNC individuals who enter congregate housing, assisted living, or long-term care settings may feel the need to reverse their transition to align with sex assigned at birth to avoid discrimination and persecution by other residents and staff (Ippolito & Witten, 2014).

Older age may both facilitate and complicate medical treatment related to gender transition. TGNC people who begin hormone therapy later in life may have a smoother transition due to waning hormone levels that are a natural part of aging (Witten & Eyler, 2012). Age may also influence the decisions TGNC elders make regarding sex-affirmation surgeries, especially if physical conditions exist that could significantly increase risks associated with surgery or recovery.

Much has been written about the resilience of elders who have endured trauma (Fuhrmann & Shevlowitz, 2006; Hardy, Concato, & Gill, 2004; Mlinac, Sheeran, Blissmer, Lees, & Martins, 2011; Rodin & Stewart, 2012). Although some TGNC elders have experienced significant psychological trauma related to their gender identity, some also have developed resilience and effective ways of coping with adversity (Fruhauf & Orel, 2015). Despite the limited availability of LGBTQ-affirmative religious organizations in many local communities, TGNC elders make greater use of these resources than their cisgender peers (Porter et al., 2013).

Application. Psychologists are encouraged to seek information about the biopsychosocial needs of TGNC elders to inform case conceptualization and treatment planning to address psychological, social, and medical concerns. Many TGNC elders are socially isolated. Isolation can occur as a result of a loss of social networks through death or through disclosure of a TGNC identity. Psychologists may assist TGNC elders in establishing new social networks that support and value their TGNC identity, while also working to strengthen existing family and friend networks after a TGNC identity has been disclosed. TGNC elders may find special value in relationships with others in their generational cohort or those who may have similar coming-out experiences. Psychologists may encourage TGNC elders to identify ways they can mentor and improve the resilience of younger TGNC generations, creating a sense of generativity (Erikson, 1968) and contribu-

tion while building new supportive relationships. Psychologists working with TGNC elders may help them recognize the sources of their resilience and encourage them to connect with and be active in their communities (Fuhrmann & Craffey, 2014).

For TGNC elders who have chosen not to disclose their gender identity, psychologists may provide support to address shame, guilt, or internalized antitrans prejudice, and validate each person's freedom to choose their pattern of disclosure. Clinicians may also provide validation and empathy when TGNC elders have chosen a model of transition that avoids any disclosure of gender identity and is heavily focused on passing as cisgender.

TGNC elders who choose to undergo a medical or social transition in older adulthood may experience antitrans prejudice from people who question the value of transition at an older age or who believe that these elders are not truly invested in their transition or in a TGNC identity given the length of time they have waited (Auldridge et al., 2012). Some TGNC elders may also grieve lost time and missed opportunities. Psychologists may validate elders' choices to come out, transition, or evolve their gender identity or gender expression at any age, recognizing that such choices may have been much less accessible or viable at earlier stages of TGNC elders' lives.

Psychologists may assist congregate housing, assisted living, or long-term care settings to best meet TGNC elders' needs through respectful communication and affirmation of each person's gender identity and gender expression. Psychologists may work with TGNC people in hospice care systems to develop an end-of-life plan that respects the person's wishes about disclosure of gender identity during and after death.

Assessment, Therapy, and Intervention

Guideline 10. Psychologists strive to understand how mental health concerns may or may not be related to a TGNC person's gender identity and the psychological effects of minority stress.

Rationale. TGNC people may seek assistance from psychologists in addressing gender-related concerns, other mental health issues, or both. Mental health problems experienced by a TGNC person may or may not be related to that person's gender identity and/or may complicate assessment and intervention of gender-related concerns. In some cases, there may not be a relationship between a person's gender identity and a co-occurring condition (e.g., depression, PTSD, substance abuse). In other cases, having a TGNC identity may lead or contribute to a co-occurring mental health condition, either directly by way of gender dysphoria, or indirectly by way of minority stress and oppression (Hendricks & Testa, 2012; I. H. Meyer, 1995, 2003). In extremely rare cases, a co-occurring condition can mimic gender dysphoria (i.e., a psychotic process that distorts the perception of one's gender; Baltieri & De Andrade, 2009; Hepp, Kraemer, Schnyder, Miller, & Delsignore, 2004).

Regardless of the presence or absence of an etiological link, gender identity may affect how a TGNC person experiences a co-occurring mental health condition, and/or a co-occurring mental health condition may complicate the person's gender expression or gender identity. For example, an eating disorder may be influenced by a TGNC person's gender expression (e.g., rigid eating patterns used to manage body shape or menstruation may be related to gender identity or gender dysphoria; Ålgars, Alanko, Santtila, & Sandnabba, 2012; Murray, Boon, & Touyz, 2013). In addition, the presence of autism spectrum disorder may complicate a TGNC person's articulation and exploration of gender identity (Jones et al., 2012). In cases in which gender dysphoria is contributing to other mental health concerns, treatment of gender dysphoria may be helpful in alleviating those concerns as well (Keo-Meier et al., 2015).

A relationship also exists between mental health conditions and the psychological sequelae of minority stress that TGNC people can experience. Given that TGNC people experience physical and sexual violence (Clements-Nolle et al., 2006; Kenagy & Bostwick, 2005; Lombardi, Wilchins, Priesing, & Malouf, 2001; Xavier et al., 2005), general harassment and discrimination (Beemyn & Rankin, 2011; Factor & Rothblum, 2007), and employment and housing discrimination (Bradford et al., 2007), they are likely to experience significant levels of minority stress. Studies have demonstrated the disproportionately high levels of negative psychological sequelae related to minority stress, including suicidal ideation and suicide attempts (Center for Substance Abuse Treatment, 2012; Clements-Nolle et al., 2006; Cochran & Cauce, 2006; Nuttbrock et al., 2010; Xavier et al., 2005) and completed suicides (Dhejne et al., 2011; van Kesteren, Asscheman, Megens, & Gooren, 1997). Recent studies have begun to demonstrate an association between sources of external stress and psychological distress (Bockting et al., 2013; Nuttbrock et al., 2010), including suicidal ideation and attempts and self-injurious behavior (dickey, Reisner, & Juntunen, 2015; Goldblum et al., 2012; Testa et al., 2012).

The minority stress model accounts for both the negative mental health effects of stigma-related stress and the processes by which members of the minority group may develop resilience and resistance to the negative effects of stress (I. H. Meyer, 1995, 2003). Although the minority stress model was developed as a theory of the relationship between sexual orientation and mental disorders, the model has been adapted to TGNC populations (Hendricks & Testa, 2012).

Application. Because of the increased risk of stress-related mental health conditions, psychologists are encouraged to conduct a careful diagnostic assessment, including a differential diagnosis, when working with TGNC people (Coleman et al., 2012). Taking into account the intricate interplay between the effects of mental health symptoms and gender identity and gender expression, psychologists are encouraged to neither ignore mental health problems a TGNC person is experiencing, nor erroneously

assume that those mental health problems are a result of the person's gender identity or gender expression. Psychologists are strongly encouraged to be cautious before determining that gender nonconformity or dysphoria is due to an underlying psychotic process, as this type of causal relationship is rare.

When TGNC people seek to access transition-related health care, a psychosocial assessment is often part of this process (Coleman et al., 2012). A comprehensive and balanced assessment typically includes not only information about a person's past experiences of antitrans prejudice or discrimination, internalized messages related to these experiences, and anticipation of future victimization or rejection (Coolhart, Provancher, Hager, & Wang, 2008), but also coping strategies and sources of resilience (Hendricks & Testa, 2012; Singh et al., 2011). Gathering information about negative life events directly related to a TGNC person's gender identity and gender expression may assist psychologists in understanding the sequelae of stress and discrimination, distinguishing them from concurrent and potentially unrelated mental health problems. Similarly, when a TGNC person has a primary presenting concern that is not gender focused, a comprehensive assessment takes into account that person's experience relative to gender identity and gender expression, including any discrimination, just as it would include assessing other potential trauma history, medical concerns, previous experience with helping professionals, important future goals, and important aspects of identity. Strategies a TGNC person uses to navigate antitrans discrimination could be sources of strength to deal with life challenges or sources of distress that increase challenges and barriers.

Psychologists are encouraged to help TGNC people understand the pervasive influence of minority stress and discrimination that may exist in their lives, potentially including internalized negative attitudes about themselves and their TGNC identity (Hendricks & Testa, 2012). With this support, clients can better understand the origins of their mental health symptoms and normalize their reactions when faced with TGNC-related inequities and discrimination. Minority stress models also identify potentially important sources of resilience. TGNC people can develop resilience when they connect with other TGNC people who provide information on how to navigate antitrans prejudice and increase access to necessary care and resources (Singh et al., 2011). TGNC people may need help developing social support systems to nurture their resilience and bolster their ability to cope with the adverse effects of antitrans prejudice and/or discrimination (Singh & McKleroy, 2011).

Feminizing or masculinizing hormone therapy can positively or negatively affect existing mood disorders (Coleman et al., 2012). Psychologists may also help TGNC people who are in the initial stages of hormone therapy adjust to normal changes in how they experience emotions. For example, trans women who begin estrogens and antiandrogens may experience a broader range of emotions than they are accustomed to, or trans men beginning testosterone might be faced with adjusting to a higher libido and feeling more emotionally reactive in stressful situations. These changes can be normalized as similar to the emotional adjustments that cisgender women and men experience during puberty. Some TGNC people will be able to adapt existing coping strategies, whereas others may need help developing additional skills (e.g., emotional regulation or assertiveness). Readers are encouraged to refer to the World Professional Association for Transgender Health Standards of Care for discussion of the possible effects of hormone therapy on a TGNC person's mood, affect, and behavior (Coleman et al., 2012).

Guideline 11. Psychologists recognize that TGNC people are more likely to experience positive life outcomes when they receive social support or trans-affirmative care.

Rationale. Research has primarily shown positive treatment outcomes when TGNC adults and adolescents receive TGNC-affirmative medical and psychological services (i.e., psychotherapy, hormones, surgery; Byne et al., 2012; R. Carroll, 1999; Cohen-Kettenis, Delemarre-van de Waal, & Gooren, 2008; Davis & Meier, 2014; De Cuypere et al., 2006; Gooren, Giltay, & Bunck, 2008; Kuhn et al., 2009), although sample sizes are frequently small with no population-based studies. In a meta-analysis of the hormone therapy treatment literature with TGNC adults and adolescents, researchers reported that 80% of participants receiving trans-affirmative care experienced an improved quality of life, decreased gender dysphoria, and a reduction in negative psychological symptoms (Murad et al., 2010).

In addition, TGNC people who receive social support about their gender identity and gender expression have improved outcomes and quality of life (Brill & Pepper, 2008; Pinto, Melendez, & Spector, 2008). Several studies indicate that family acceptance of TGNC adolescents and adults is associated with decreased rates of negative outcomes, such as depression, suicide, and HIV risk behaviors and infection (Bockting et al., 2013; Dhejne et al., 2011; Grant et al., 2011; Liu & Mustanski, 2012; Ryan, 2009). Family support is also a strong protective factor for TGNC adults and adolescents (Bockting et al., 2013; Moody & Smith, 2013; Ryan et al., 2010). TGNC people, however, frequently experience blatant or subtle antitrans prejudice, discrimination, and even violence within their families (Bradford et al., 2007). Such family rejection is associated with higher rates of HIV infection, suicide, incarceration, and homelessness for TGNC adults and adolescents (Grant et al., 2011; Liu & Mustanski, 2012). Family rejection and lower levels of social support are significantly correlated with depression (Clements-Nolle et al., 2006; Ryan, 2009). Many TGNC people seek support through peer relationships, chosen families, and communities in which they may be more likely to experience acceptance (Gonzalez & McNulty, 2010; Nuttbrock et al., 2009). Peer support from other TGNC people has been found to be a moderator between antitrans discrimination and mental health, with higher levels of peer support associated with better mental health (Bockting et al., 2013). For some TGNC people, support from religious and spiritual communities provides

an important source of resilience (Glaser, 2008; Kidd & Witten, 2008; Porter et al., 2013).

Application. Given the strong evidence for the positive influence of affirmative care, psychologists are encouraged to facilitate access to and provide trans-affirmative care to TGNC people. Whether through the provision of assessment and psychotherapy, or through assisting clients to access hormone therapy or surgery, psychologists may play a critical role in empowering and validating TGNC adults' and adolescents' experiences and increasing TGNC people's positive life outcomes (Bess & Stabb, 2009; Rachlin, 2002).

Psychologists are also encouraged to be aware of the importance of affirmative social support and assist TGNC adults and adolescents in building social support networks in which their gender identity is accepted and affirmed. Psychologists may assist TGNC people in negotiating family dynamics that may arise in the course of exploring and establishing gender identity. Depending on the context of psychological practice, these issues might be addressed in individual work with TGNC clients, conjoint sessions including members of their support system, family therapy, or group therapy. Psychologists may help TGNC people decide how and when to reveal their gender identity at work or school, in religious communities, and to friends and contacts in other settings. TGNC people who decide not to come out in all aspects of their lives can still benefit from TGNC-affirmative in-person or online peer support groups.

Clients may ask psychologists to assist family members in exploring feelings about their loved one's gender identity and gender expression. Published models of family adjustment (Emerson & Rosenfeld, 1996) may be useful to help normalize family members' reactions upon learning that they have a TGNC family member, and to reduce feelings of isolation. When working with family members or significant others, it may be helpful to normalize feelings of loss or fear of what may happen to current relationships as TGNC people disclose their gender identity and expression to others. Psychologists may help significant others adjust to changing relationships and consider how to talk to extended family, friends, and other community members about TGNC loved ones. Providing significant others with referrals to TGNC-affirmative providers, educational resources, and support groups can have a profound impact on their understanding of gender identity and their communication with TGNC loved ones. Psychologists working with couples and families may also help TGNC people identify ways to include significant others in their social or medical transition.

Psychologists working with TGNC people in rural settings may provide clients with resources to connect with other TGNC people online or provide information about in-person support groups in which they can explore the unique challenges of being TGNC in these geographic areas (Walinsky & Whitcomb, 2010). Psychologists serving TGNC military and veteran populations are encouraged to be sensitive to the barriers these individuals face, especially for people who are on active duty in the U.S. military (OutServe-Servicemembers Legal Defense Network, n.d.). Psychologists may help TGNC military members and veterans establish specific systems of support that create a safe and affirming space to reduce isolation and to create a network of peers with a shared military experience. Psychologists who work with veterans are encouraged to educate themselves on recent changes to VA policy that support equal access to VA medical and mental health services (Department of Veterans Affairs, Veterans' Health Administration, 2013).

Guideline 12. Psychologists strive to understand the effects that changes in gender identity and gender expression have on the romantic and sexual relationships of TGNC people.

Rationale. Relationships involving TGNC people can be healthy and successful (Kins, Hoebeke, Heylens, Rubens, & De Cuyprere, 2008; Meier, Sharp, Michonski, Babcock, & Fitzgerald, 2013) as well as challenging (Brown, 2007; Iantaffi & Bockting, 2011). A study of successful relationships between TGNC men and cisgender women found that these couples attributed the success of their relationship to respect, honesty, trust, love, understanding, and open communication (Kins et al., 2008). Just as relationships between cisgender people can involve abuse, so can relationships between TGNC people and their partners (Brown, 2007), with some violent partners threatening to disclose a TGNC person's identity to exact control in the relationship (FORGE, n.d.).

In the early decades of medical and social transition for TGNC people, only those whose sexual orientations would be heterosexual posttransition (e.g., trans woman with a cisgender man) were deemed eligible for medical and social transition (Meyerowitz, 2002). This restriction prescribed only certain relationship partners (American Psychiatric Association, 1980; Benjamin, 1966; Chivers & Bailey, 2000), denied access to surgery for trans men identifying as gay or bisexual (Coleman & Bockting, 1988), or trans women identifying as lesbian or bisexual, and even required that TGNC people's existing legal marriages be dissolved before they could gain access to transition care (Lev, 2004).

Disclosure of a TGNC identity can have an important impact on the relationship between TGNC people and their partners. Disclosure of TGNC status earlier in the relationship tends to be associated with better relationship outcomes, whereas disclosure of TGNC status many years into an existing relationship may be perceived as a betrayal (Erhardt, 2007). When a TGNC person comes out in the context of an existing relationship, it can also be helpful if both partners are involved in decision making about the use of shared resources (i.e., how to balance the financial costs of transition with other family needs) and how to share this news with shared supports (i.e., friends and family). Sometimes relationship roles are renegotiated in the context of a TGNC person coming out to their partner (Samons, 2008). Assumptions about what it means to be a "husband" or a "wife" can shift if the gender identity of one's spouse shifts

(Erhardt, 2007). Depending on when gender issues are disclosed and how much of a change this creates in the relationship, partners may grieve the loss of aspects of their partner and the way the relationship used to be (Lev, 2004).

Although increasing alignment between gender identity and gender expression, whether it be through dress, behavior, or through medical interventions (i.e., hormones, surgery), does not necessarily affect to whom a TGNC person is attracted (Coleman et al., 1993), TGNC people may become more open to exploring their sexual orientation, may redefine sexual orientation as they move through transition, or both (Daskalos, 1998; H. Devor, 1993; Schleifer, 2006). Through increased comfort with their body and gender identity, TGNC people may explore aspects of their sexual orientation that were previously hidden or that felt discordant with their sex assigned at birth. Following a medical and/or social transition, a TGNC person's sexual orientation may remain constant or shift, either temporarily or permanently (e.g., renewed exploration of sexual orientation in the context of TGNC identity, shift in attraction or choice of sexual partners, widened spectrum of attraction, shift in sexual orientation identity; Meier, Sharp et al., 2013; Samons, 2008). For example, a trans man previously identified as a lesbian may later be attracted to men (Coleman et al., 1993; dickey, Burnes, & Singh, 2012), and a trans woman attracted to women pretransition may remain attracted to women posttransition (Lev, 2004).

Some TGNC people and their partners may fear the loss of mutual sexual attraction and other potential effects of shifting gender identities in the relationship. Lesbian-identified partners of trans men may struggle with the idea that being in a relationship with a man may cause others to perceive them as a heterosexual couple (Califia, 1997). Similarly, women in heterosexual relationships who later learn that their partners are trans women may be unfamiliar with navigating stigma associated with sexual minority status when viewed as a lesbian couple (Erhardt, 2007). Additionally, partners may find they are not attracted to a partner after transition. As an example, a lesbian whose partner transitions to a male identity may find that she is no longer attracted to this person because she is not sexually attracted to men. Partners of TGNC people may also experience grief and loss as their partners engage in social and/or medical transitions.

Application. Psychologists may help foster resilience in relationships by addressing issues specific to partners of TGNC people. Psychologists may provide support to partners of TGNC people who are having difficulty with their partner's evolving gender identity or transition, or are experiencing others having difficulty with the partner's transition. Partner peer support groups may be especially helpful in navigating internalized antitrans prejudice, shame, resentment, and relationship concerns related to a partner's gender transition. Meeting or knowing other TGNC people, other partners of TGNC people, and couples who have successfully navigated transition may also help TGNC people and their partners and serve as a protective factor (Brown, 2007). When TGNC status is disclosed during an existing relationship, psychologists may help couples explore which relationship dynamics they want to preserve and which they might like to change.

In working with psychologists, TGNC people may explore a range of issues in their relationships and sexuality (dickey et al., 2012), including when and how to come out to current or potential romantic and sexual partners, communicating their sexual desires, renegotiating intimacy that may be lost during the TGNC partner's transition, adapting to bodily changes caused by hormone use or surgery, and exploring boundaries regarding touch, affection, and safer sex practices (Iantaffi & Bockting, 2011; Sevelius, 2009). TGNC people may experience increased sexual self-efficacy through transition. Although psychologists may aid partners in understanding a TGNC person's transition decisions, TGNC people may also benefit from help in cultivating awareness of the ways in which these decisions influence the lives of loved ones.

Guideline 13. Psychologists seek to understand how parenting and family formation among TGNC people take a variety of forms.

Rationale. Psychologists work with TGNC people across the life span to address parenting and family issues (Kenagy & Hsieh, 2005). There is evidence that many TGNC people have and want children (Wierckx et al., 2012). Some TGNC people conceive a child through sexual intercourse, whereas others may foster, adopt, pursue surrogacy, or employ assisted reproductive technologies, such as sperm or egg donation, to build or expand a family (De Sutter, Kira, Verschoor, & Hotimsky, 2002). Based on a small body of research to date, there is no indication that children of TGNC parents suffer long-term negative impacts directly related to parental gender change (R. Green, 1978, 1988; White & Ettner, 2004). TGNC people may find it both challenging to find medical providers who are willing to offer them reproductive treatment and to afford the cost (Coleman et al., 2012). Similarly, adoption can be quite costly, and some TGNC people may find it challenging to find foster care or adoption agencies that will work with them in a nondiscriminatory manner. Current or past use of hormone therapy may limit fertility and restrict a TGNC person's reproductive options (Darnery, 2008; Wierckx et al., 2012). Other TGNC people may have children or families before coming out as TGNC or beginning a gender transition.

TGNC people may present with a range of parenting and family-building concerns. Some will seek support to address issues within preexisting family systems, some will explore the creation or expansion of a family, and some will need to make decisions regarding potential fertility issues related to hormone therapy, pubertal suppression, or surgical transition. The medical and/or social transition of a TGNC parent may shift family dynamics, creating challenges and opportunities for partners, children, and other family members. One study of therapists' reflections on their experiences with TGNC clients suggested that family constellation and the parental relationship was more significant for children than the parent's social and/or medical

transition itself (White & Ettner, 2004). Although research has not documented that the transitions of TGNC people have an effect on their parenting abilities, preexisting partnerships or marriages may not survive the disclosure of a TGNC identity or a subsequent transition (dickey et al., 2012). This may result in divorce or separation, which may affect the children in the family. A positive relationship between parents, regardless of marital status, has been suggested to be an important protective factor for children (Amato, 2001; White & Ettner, 2007). This seems to be the case especially when children are reminded of the parent's love and assured of the parent's continued presence in their life (White & Ettner, 2007). Based on a small body of literature available, it is generally the case that younger children are best able to incorporate the transition of a parent, followed by adult children, with adolescents generally having the most difficulty (White & Ettner, 2007). If separated or divorced from their partners or spouses, TGNC parents may be at risk for loss of custody or visitation rights because some courts presume that there is a nexus between their gender identity or gender expression and parental fitness (Flynn, 2006). This type of prejudice is especially common for TGNC people of color (Grant et al., 2011).

Application. Psychologists are encouraged to attend to the parenting and family-building concerns of TGNC people. When working with TGNC people who have previous parenting experience, psychologists may help TGNC people identify how being a parent may influence decisions to come out as TGNC or to begin a transition (Freeman, Tasker, & Di Ceglie, 2002; Grant et al., 2011; Wierckx et al., 2012). Some TGNC people may choose to delay disclosure until their children have grown and left home (Bethea & McCollum, 2013). Clinical guidelines jointly developed by a Vancouver, British Columbia, TGNC community organization and a health care provider organization encourage psychologists and other mental health providers working with TGNC people to plan for disclosure to a partner, previous partner, or children, and to pay particular attention to resources that assist TGNC people to discuss their identity with children of various ages in developmentally appropriate ways (Bockting et al., 2006). Lev (2004) uses a developmental stage framework for the process that family members are likely to go through in coming to terms with a TGNC family member's identity that some psychologists may find helpful. Awareness of peer support networks for spouses and children of TGNC people can also be helpful (e.g., PFLAG, TransYouth Family Allies). Psychologists may provide family counseling to assist a family in managing disclosure, improve family functioning, and maintain family involvement of the TGNC person, as well as aiding the TGNC person in attending to the ways that their transition process has affected their family members (Samons, 2008). Helping parents to continue to work together to focus on the needs of their children and to maintain family bonds is likely to lead to the best results for the children (White & Ettner, 2007).

For TGNC people with existing families, psychologists may support TGNC people in seeking legal counsel regarding parental rights in adoption or custody. Depending on the situation, this may be desirable even if the TGNC parent is biologically related to the child (Minter & Wald, 2012). Although being TGNC is not a legal impediment to adoption in the United States, there is the potential for overt and covert discrimination and barriers, given the widespread prejudice against TGNC people. The question of whether to disclose TGNC status on an adoption application is a personal one, and a prospective TGNC parent would benefit from consulting a lawyer for legal advice, including what the laws in their jurisdiction say about disclosure. Given the extensive background investigation frequently conducted, it may be difficult to avoid disclosure. Many lawyers favor disclosure to avoid any potential legal challenges during the adoption process (Minter & Wald, 2012).

In discussing family-building options with TGNC people, psychologists are encouraged to remain aware that some of these options require medical intervention and are not available everywhere, in addition to being quite costly (Coleman et al., 2012). Psychologists may work with clients to manage feelings of loss, grief, anger, and resentment that may arise if TGNC people are unable to access or afford the services they need for building a family (Bockting et al., 2006; De Sutter et al., 2002).

When TGNC people consider beginning hormone therapy, psychologists may engage them in a conversation about the possibly permanent effects on fertility to better prepare TGNC people to make a fully informed decision. This may be of special importance with TGNC adolescents and young adults who often feel that family planning or loss of fertility is not a significant concern in their current daily lives, and therefore disregard the long-term reproductive implications of hormone therapy or surgery (Coleman et al., 2012). Psychologists are encouraged to discuss contraception and safer sex practices with TGNC people, given that they may still have the ability to conceive even when undergoing hormone therapy (Bockting, Robinson, & Rosser, 1998). Psychologists may play a critical role in educating TGNC adolescents and young adults and their parents about the long-term effects of medical interventions on fertility and assist them in offering informed consent prior to pursuing such interventions. Although hormone therapy may limit fertility (Coleman et al., 2012), psychologists may encourage TGNC people to refrain from relying on hormone therapy as the sole means of birth control, even when a person has amenorrhea (Gorton & Grubb, 2014). Education on safer sex practices may also be important, as some segments of the TGNC community (e.g., trans women and people of color) are especially vulnerable to sexually transmitted infections and have been shown to have high prevalence and incidence rates of HIV infection (Kellogg, Clements-Nolle, Dilley, Katz, & McFarland, 2001; Nemoto, Operario, Keatley, Han, & Soma, 2004).

Depending on the timing and type of options selected, psychologists may explore the physical, social, and emotional implications should TGNC people choose to delay or

stop hormone therapy, undergo fertility treatment, or become pregnant. Psychological effects of stopping hormone therapy may include depression, mood swings, and reactions to the loss of physical masculinization or feminization facilitated by hormone therapy (Coleman et al., 2012). TGNC people who choose to halt hormone therapy during attempts to conceive or during a pregnancy may need additional psychological support. For example, TGNC people and their families may need help in managing the additional antitrans prejudice and scrutiny that may result when a TGNC person with stereotypically masculine features becomes visibly pregnant. Psychologists may also assist TGNC people in addressing their loss when they cannot engage in reproductive activities that are consistent with their gender identity, or when they encounter barriers to conceiving, adopting, or fostering children not typically faced by other people (Vanderburgh, 2007). Psychologists are encouraged to assess the degree to which reproductive health services are TGNC-affirmative prior to referring TGNC people to them. Psychologists are also encouraged to provide TGNC-affirmative information to reproductive health service personnel when there is a lack of trans-affirmative knowledge.

Guideline 14. Psychologists recognize the potential benefits of an interdisciplinary approach when providing care to TGNC people and strive to work collaboratively with other providers.

Rationale. Collaboration across disciplines can be crucial when working with TGNC people because of the potential interplay of biological, psychological, and social factors in diagnosis and treatment (Hendricks & Testa, 2012). The challenges of living with a stigmatized identity and the need of many TGNC people to transition, socially and/or medically, may call for the involvement of health professionals from various disciplines, including psychologists, psychiatrists, social workers, primary health care providers, endocrinologists, nurses, pharmacists, surgeons, gynecologists, urologists, electrologists, speech therapists, physical therapists, pastoral counselors and chaplains, and career or educational counselors. Communication, cooperation, and collaboration will ensure optimal coordination and quality of care. Just as psychologists often refer TGNC people to medical providers for assessment and treatment of medical issues, medical providers may rely on psychologists to assess readiness and assist TGNC clients to prepare for the psychological and social aspects of transition before, during, and after medical interventions (Coleman et al., 2012; Hembree et al., 2009; Lev, 2009). Outcome research to date supports the value and effectiveness of an interdisciplinary, collaborative approach to TGNC-specific care (see Coleman et al., 2012 for a review).

Application. Psychologists' collaboration with colleagues in medical and associated health disciplines involved in TGNC clients' care (e.g., hormonal and surgical treatment, primary health care; Coleman et al., 2012; Lev, 2009) may take many forms and should occur in a timely manner that does not complicate access to needed services (e.g., considerations of wait time). For example, a psychologist working with a trans man who has a diagnosis of bipolar disorder may need to coordinate with his primary care provider and psychiatrist to adjust his hormone levels and psychiatric medications, given that testosterone can have an activating effect, in addition to treating gender dysphoria. At a basic level, collaboration may entail the creation of required documentation that TGNC people present to surgeons or medical providers to access gender-affirming medical interventions (e.g., surgery, hormone therapy; Coleman et al., 2012). Psychologists may offer support, information, and education to interdisciplinary colleagues who are unfamiliar with issues of gender identity and gender expression to assist TGNC people in obtaining TGNC-affirmative care (Holman & Goldberg, 2006; Lev, 2009). For example, a psychologist who is assisting a trans woman with obtaining gender-affirming surgery may, with her consent, contact her new gynecologist in preparation for her first medical visit. This contact could include sharing general information about her gender history and discussing how both providers could most affirmatively support appropriate health checks to ensure her best physical health (Holman & Goldberg, 2006).

Psychologists in interdisciplinary settings could also collaborate with medical professionals prescribing hormone therapy by educating TGNC people and ensuring TGNC people are able to make fully informed decisions prior to starting hormone treatment (Coleman et al., 2012; Deutsch, 2012; Lev, 2009). Psychologists working with children and adolescents play a particularly important role on the interdisciplinary team due to considerations of cognitive and social development, family dynamics, and degree of parental support. This role is especially crucial when providing psychological evaluation to determine the appropriateness and timeliness of a medical intervention. When psychologists are not part of an interdisciplinary setting, especially in isolated or rural communities, they can identify interdisciplinary colleagues with whom they may collaborate and/or refer (Walinsky & Whitcomb, 2010). For example, a rural psychologist could identify a trans-affirmative pediatrician in a surrounding area and collaborate with the pediatrician to work with parents raising concerns about their TGNC and questioning children and adolescents.

In addition to working collaboratively with other providers, psychologists who obtain additional training to specialize in work with TGNC people may also serve as consultants in the field (e.g., providing additional support to providers working with TGNC people or assisting school and workplaces with diversity training). Psychologists who have expertise in working with TGNC people may play a consultative role with providers in inpatient settings seeking to provide affirmative care to TGNC clients. Psychologists may also collaborate with social service colleagues to provide TGNC people with affirmative referrals related to housing, financial support, vocational/educational counseling and training, TGNC-affirming religious or spiritual communities, peer support, and other community resources (Gehi & Arkles, 2007). This collaboration might also in-

clude assuring that TGNC people who are minors in the care of the state have access to culturally appropriate care.

Research, Education, and Training

Guideline 15. Psychologists respect the welfare and rights of TGNC participants in research and strive to represent results accurately and avoid misuse or misrepresentation of findings.

Rationale. Historically, in a set of demographic questions, psychological research has included one item on either sex or gender, with two response options—male and female. This approach wastes an opportunity to increase knowledge about TGNC people for whom neither option may fit their identity, and runs the risk of alienating TGNC research participants (IOM, 2011). For example, there is little knowledge about HIV prevalence, risks, and prevention needs of TGNC people because most of the research on HIV has not included demographic questions to identify TGNC participants within their samples. Instead, TGNC people have been historically subsumed within larger demographic categories (e.g., men who have sex with men, women of color), rendering the impact of the HIV epidemic on the TGNC population invisible (Herbst et al., 2008). Scholars have noted that this invisibility fails to draw attention to the needs of TGNC populations that experience the greatest health disparities, including TGNC people who are of color, immigrants, low income, homeless, veterans, incarcerated, live in rural areas, or have disabilities (Bauer et al., 2009; Hanssmann, Morrison, Russian, Shiu-Thornton, & Bowen, 2010; Shipherd et al., 2012; Walinsky & Whitcomb, 2010).

There is a great need for more research to inform practice, including affirmative treatment approaches with TGNC people. Although sufficient evidence exists to support current standards of care (Byne et al., 2012; Coleman et al., 2012), much is yet to be learned to optimize quality of care and outcome for TGNC clients, especially as it relates to the treatment of children (IOM, 2011; Mikalson et al., 2012). In addition, some research with TGNC populations has been misused and misinterpreted, negatively affecting TGNC people's access to health services to address issues of gender identity and gender expression (Namaste, 2000). This has resulted in justifiable skepticism and suspicion in the TGNC community when invited to participate in research initiatives. In accordance with the APA ethics code (APA, 2010), psychologists conduct research and distribute research findings with integrity and respect for their research participants. As TGNC research increases, some TGNC communities may experience being oversampled in particular geographic areas and/or TGNC people of color may not be well-represented in TGNC studies (Hwahng & Lin, 2009; Namaste, 2000).

Application. All psychologists conducting research, even when not specific to TGNC populations, are encouraged to provide a range of options for capturing demographic information about TGNC people so that TGNC people may be included and accurately represented (Conron et al., 2008; Deutsch et al., 2013). One group of experts has recommended that population research, and especially government-sponsored surveillance research, use a two-step method, first asking for sex assigned at birth, and then following with a question about gender identity (GenIUSS, 2013). For research focused on TGNC people, including questions that assess both sex assigned at birth and current gender identity allows the disaggregation of subgroups within the TGNC population and has the potential to increase knowledge of differences within the population. In addition, findings about one subgroup of TGNC people may not apply to other subgroups. For example, results from a study of trans women of color with a history of sex work who live in urban areas (Nemoto, Operario, Keatley, & Villegas, 2004) may not generalize to all TGNC women of color or to the larger TGNC population (Bauer, Travers, Scanlon, & Coleman, 2012; Operario et al., 2008).

In conducting research with TGNC people, psychologists will confront the challenges associated with studying a relatively small, geographically dispersed, diverse, stigmatized, hidden, and hard-to-reach population (IOM, 2011). Because TGNC individuals are often hard to reach (IOM, 2011) and TGNC research is rapidly evolving, it is important to consider the strengths and limitations of the methods that have been or may be used to study the TGNC population, and to interpret and represent findings accordingly. Some researchers have strongly recommended collaborative research models (e.g., participatory action research) in which TGNC community members are integrally involved in these research activities (Clements-Nolle & Bachrach, 2003; Singh, Richmond, & Burnes, 2013). Psychologists who seek to educate the public by communicating research findings in the popular media will also confront challenges, because most journalists have limited knowledge about the scientific method and there is potential for the media to misinterpret, exploit, or sensationalize findings (Garber, 1992; Namaste, 2000).

Guideline 16. Psychologists Seek to Prepare Trainees in Psychology to Work Competently With TGNC People.

Rationale. The *Ethical Principles of Psychologists and Code of Conduct* (APA, 2010) include gender identity as one factor for which psychologists may need to obtain training, experience, consultation, or supervision in order to ensure their competence (APA, 2010). In addition, when APA-accredited programs are required to demonstrate a commitment to cultural and individual diversity, gender identity is specifically included (APA, 2015). Yet surveys of TGNC people suggest that many mental health care providers lack even basic knowledge and skills required to offer trans-affirmative care (Bradford et al., 2007; O'Hara, Dispenza, Brack, & Blood, 2013; Xavier et al., 2005). The APA Task Force on Gender Identity and Gender Variance (2009) projected that many, if not most, psychologists and graduate psychology students will at some point encounter TGNC people among their clients, colleagues, and trainees. Yet professional education and training in psychology includes little or no preparation for

working with TGNC people (Anton, 2009; APA TFGIGV, 2009), and continuing professional education available to practicing mental health clinicians is also scant (Lurie, 2005). Only 52% percent of psychologists and graduate students who responded to a survey conducted by an APA Task Force reported having had the opportunity to learn about TGNC issues in school; of those respondents, only 27% reported feeling adequately familiar with gender concerns (n = 294; APA TFGIGV, 2009).

Training on gender identity in professional psychology has frequently been subsumed under discussions of sexual orientation or in classes on human sexuality. Some scholars have suggested that psychologists and students may mistakenly believe that they have obtained adequate knowledge and awareness about TGNC people through training focused on LGB populations (Harper & Schneider, 2003). However, Israel and colleagues have found important differences between the therapeutic needs of TGNC people and those of LGB people in the perceptions of both clients and providers (Israel et al., 2008; Israel, Walther, Gorcheva, & Perry, 2011). Nadal and colleagues have suggested that the absence of distinct, accurate information about TGNC populations in psychology training not only perpetuates misunderstanding and marginalization of TGNC people by psychologists but also contributes to continued marginalization of TGNC people in society as a whole (Nadal et al., 2010, 2012).

Application. Psychologists strive to continue their education on issues of gender identity and gender expression with TGNC people as a foundational component of affirmative psychological practice. In addition to these guidelines, which educators may use as a resource in developing curricula and training experiences, ACA (2010) has also adopted a set of competencies that may be a helpful resource for educators. In addition to including TGNC people and their issues in foundational education in health service psychology (e.g., personality development, multiculturalism, research methods), some psychology programs may also provide coursework and training for students interested in developing more advanced expertise on issues of gender identity and gender expression.

Because of the high level of societal ignorance and stigma associated with TGNC people, ensuring that psychological education, training, and supervision is affirmative, and does not sensationalize (Namaste, 2000), exploit, or pathologize TGNC people (Lev, 2004), will require care on the part of educators. Students will benefit from support from their educators in developing a professional, nonjudgmental attitude toward people who may have a different experience of gender identity and gender expression from their own. A number of training resources have been published that may be helpful to psychologists in integrating information about TGNC people into the training they offer (e.g., Catalano, McCarthy, & Shlasko, 2007; Stryker, 2008; Wentling, Schilt, Windsor, & Lucal, 2008). Because most psychologists have had little or no training on TGNC populations and do not perceive themselves as having sufficient understanding of issues related to gender identity and gender expression (APA TFGIGV, 2009), psychologists with relevant expertise are encouraged to develop and distribute continuing education and training to help to address these gaps. Psychologists providing education can incorporate activities that increase awareness of cisgender privilege, antitrans prejudice and discrimination, host a panel of TGNC people to offer personal perspectives, or include narratives of TGNC people in course readings (ACA, 2010). When engaging these approaches, it is important to include a wide variety of TGNC experiences to reflect the inherent diversity within the TGNC community.

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Appendix A
Definitions

Terminology within the health care field and transgender and gender nonconforming (TGNC) communities is constantly evolving (Coleman et al., 2012). The evolution of terminology has been especially rapid in the last decade, as the profession's awareness of gender diversity has increased, as more literature and research in this area has been published, and as voices of the TGNC community have strengthened. Some terms or definitions are not universally accepted, and there is some disagreement among professionals and communities as to the "correct" words or definitions, depending on theoretical orientation, geographic region, generation, or culture, with some terms seen as affirming and others as outdated or demeaning. American Psychological Association (APA) Task Force for *Guidelines for Psychological Practice with Transgender and Gender Nonconforming People* developed the definitions below by reviewing existing definitions put forward by professional organizations (e.g., APA Task Force on Gender Identity and Gender Variance, 2009; the Institute of Medicine, 2011; and the World Professional Association for Transgender Health [Coleman et al., 2012]), health care agencies serving TGNC clients (e.g., Fenway Health Center), TGNC community resources (Gender Equity Resource Center, National Center for Transgender Equality), and professional literature. Psychologists are encouraged to refresh their knowledge and familiarity with evolving terminology on a regular basis as changes emerge in the community and/or the professional literature. The definitions below include terms frequently used within the *Guidelines*, by the TGNC community, and within professional literature.

Ally: a cisgender person who supports and advocates for TGNC people and/or communities.

(*Appendices continue*)

Antitrans prejudice (transprejudice, transnegativity, transphobia): prejudicial attitudes that may result in the devaluing, dislike, and hatred of people whose gender identity and/or gender expression do not conform to their sex assigned at birth. Antitrans prejudice may lead to discriminatory behaviors in such areas as employment and public accommodations, and may lead to harassment and violence. When TGNC people hold these negative attitudes about themselves and their gender identity, it is called *internalized transphobia* (a construct analogous to internalized homophobia). Transmisogyny describes a simultaneous experience of sexism and antitrans prejudice with particularly adverse effects on trans women.

Cisgender: an adjective used to describe a person whose gender identity and gender expression align with sex assigned at birth; a person who is not TGNC.

Cisgenderism: a systemic bias based on the ideology that gender expression and gender identities are determined by sex assigned at birth rather than self-identified gender identity. Cisgenderism may lead to prejudicial attitudes and discriminatory behaviors toward TGNC people or to forms of behavior or gender expression that lie outside of the traditional gender binary.

Coming out: a process by which individuals affirm and actualize a stigmatized identity. Coming out as TGNC can include disclosing a gender identity or gender history that does not align with sex assigned at birth or current gender expression. Coming out is an individual process and is partially influenced by one's age and other generational influences.

Cross dressing: wearing clothing, accessories, and/or make-up, and/or adopting a gender expression not associated with a person's assigned sex at birth according to cultural and environmental standards (Bullough & Bullough, 1993). Cross-dressing is not always reflective of gender identity or sexual orientation. People who cross-dress may or may not identify with the larger TGNC community.

Disorders of sex development (DSD, Intersex): term used to describe a variety of medical conditions associated with atypical development of an individual's physical sex characteristics (Hughes, Houk, Ahmed, & Lee, 2006). These conditions may involve differences of a person's internal and/or external reproductive organs, sex chromosomes, and/or sex-related hormones that may complicate sex assignment at birth. DSD conditions may be considered variations in biological diversity rather than disorders (M. Diamond, 2009); therefore some prefer the terms *intersex*, *intersexuality*, or *differences in sex development* rather than "disorders of sex development" (Coleman et al., 2012).

Drag: the act of adopting a gender expression, often as part of a performance. Drag may be enacted as a political comment on gender, as parody, or as entertainment, and is not necessarily reflective of gender identity.

Female-to-male (FTM): individuals assigned a female sex at birth who have changed, are changing, or wish to change their body and/or gender identity to a more masculine body or gender identity. FTM persons are also often referred to as *transgender men*, *transmen*, or *trans men*.

Gatekeeping: the role of psychologists and other mental health professionals of evaluating a TGNC person's eligibility and readiness for hormone therapy or surgery according to the Standards of Care set forth by the World Professional Association for Transgender Health (Coleman et al., 2012). In the past, this role has been perceived as limiting a TGNC adult's autonomy and contributing to mistrust between psychologists and TGNC clients. Current approaches are sensitive to this history and are more affirming of a TGNC adult's autonomy in making decisions with regard to medical transition (American Counseling Association, 2010; Coleman et al., 2012; Singh & Burnes, 2010).

Gender-affirming surgery (sex reassignment surgery or gender reassignment surgery): surgery to change primary and/or secondary sex characteristics to better align a person's physical appearance with their gender identity. Gender-affirming surgery can be an important part of medically necessary treatment to alleviate gender dysphoria and may include mastectomy, hysterectomy, metoidioplasty, phalloplasty, breast augmentation, orchiectomy, vaginoplasty, facial feminization surgery, and/or other surgical procedures.

Gender binary: the classification of gender into two discrete categories of boy/man and girl/woman.

Gender dysphoria: discomfort or distress related to incongruence between a person's gender identity, sex assigned at birth, gender identity, and/or primary and secondary sex characteristics (Knudson, De Cuypere, & Bockting, 2010). In 2013, the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM–5*; American Psychiatric Association, 2013) adopted the term *gender dysphoria* as a diagnosis characterized by "a marked incongruence between" a person's gender assigned at birth and gender identity (American Psychiatric Association, 2013, p. 453). Gender dysphoria replaced the diagnosis of gender identity disorder (GID) in the previous version of the *DSM* (American Psychiatric Association, 2000).

Gender expression: the presentation of an individual, including physical appearance, clothing choice and accessories, and behaviors that express aspects of gender identity or role. Gender expression may or may not conform to a person's gender identity.

(*Appendices continue*)

Gender identity: a person's deeply felt, inherent sense of being a boy, a man, or male; a girl, a woman, or female; or an alternative gender (e.g., genderqueer, gender nonconforming, gender neutral) that may or may not correspond to a person's sex assigned at birth or to a person's primary or secondary sex characteristics. Because gender identity is internal, a person's gender identity is not necessarily visible to others. "Affirmed gender identity" refers to a person's gender identity after coming out as TGNC or undergoing a social and/or medical transition process.

Gender marker: an indicator (M, F) of a person's sex or gender found on identification (e.g., driver's license, passport) and other legal documents (e.g., birth certificate, academic transcripts).

Gender nonconforming (GNC): an adjective used as an umbrella term to describe people whose gender expression or gender identity differs from gender norms associated with their assigned birth sex. Subpopulations of the TGNC community can develop specialized language to represent their experience and culture, such as the term "masculine of center" (MOC; Cole & Han, 2011) that is used in communities of color to describe one's GNC identity.

Gender questioning: an adjective to describe people who may be questioning or exploring their gender identity and whose gender identity may not align with their sex assigned at birth.

Genderqueer: a term to describe a person whose gender identity does not align with a binary understanding of gender (i.e., a person who does not identify fully as either a man or a woman). People who identify as genderqueer may redefine gender or decline to define themselves as gendered altogether. For example, people who identify as genderqueer may think of themselves as both man and woman (bigender, pangender, androgyne); neither man nor woman (genderless, gender neutral, neutrois, agender); moving between genders (genderfluid); or embodying a third gender.

Gender role: refers to a pattern of appearance, personality, and behavior that, in a given culture, is associated with being a boy/man/male or being a girl/woman/female. The appearance, personality, and behavior characteristics may or may not conform to what is expected based on a person's sex assigned at birth according to cultural and environmental standards. Gender role may also refer to the *social* role in which one is living (e.g., as a woman, a man, or another gender), with some role characteristics conforming and others not conforming to what is associated with girls/women or boys/men in a given culture and time.

Hormone therapy (gender-affirming hormone therapy, hormone replacement therapy): the use of hormones to masculinize or feminize a person's body to better align that person's physical characteristics with their gender identity. People wishing to feminize their body receive antiandrogens and/or estrogens; people wishing to masculinize their body receive testosterone. Hormone therapy may be an important part of medically necessary treatment to alleviate gender dysphoria.

Male-to-female (MTF): individuals whose assigned sex at birth was male and who have changed, are changing, or wish to change their body and/or gender role to a more feminized body or gender role. MTF persons are also often referred to as *transgender women*, *transwomen*, or *trans women*.

Passing: the ability to blend in with cisgender people without being recognized as transgender based on appearance or gender role and expression; being perceived as cisgender. Passing may or may not be a goal for all TGNC people.

Puberty suppression (puberty blocking, puberty delaying therapy): a treatment that can be used to temporarily suppress the development of secondary sex characteristics that occur during puberty in youth, typically using gonadotropin-releasing hormone (GnRH) analogues. Puberty suppression may be an important part of medically necessary treatment to alleviate gender dysphoria. Puberty suppression can provide adolescents time to determine whether they desire less reversible medical intervention and can serve as a diagnostic tool to determine if further medical intervention is warranted.

Sex (sex assigned at birth): sex is typically assigned at birth (or before during ultrasound) based on the appearance of external genitalia. When the external genitalia are ambiguous, other indicators (e.g., internal genitalia, chromosomal and hormonal sex) are considered to assign a sex, with the aim of assigning a sex that is most likely to be congruent with the child's gender identity (MacLaughlin & Donahoe, 2004). For most people, gender identity is congruent with sex assigned at birth (see *cisgender*); for TGNC individuals, gender identity differs in varying degrees from sex assigned at birth.

Sexual orientation: a component of identity that includes a person's sexual and emotional attraction to another person and the behavior and/or social affiliation that may result from this attraction. A person may be attracted to men, women, both, neither, or to people who are genderqueer, androgynous, or have other gender identities. Individuals may identify as lesbian, gay, heterosexual, bisexual, queer, pansexual, or asexual, among others.

Stealth (going stealth): a phrase used by some TGNC people across the life span (e.g., children, adolescents) who choose to make a transition in a new environment (e.g., school) in their affirmed gender without openly sharing their identity as a TGNC person.

(*Appendices continue*)

TGNC: an abbreviation used to refer to people who are transgender or gender nonconforming.

Trans: common short-hand for the terms transgender, transsexual, and/or gender nonconforming. Although the term "trans" is commonly accepted, not all transsexual or gender nonconforming people identify as trans.

Trans-affirmative: being respectful, aware and supportive of the needs of TGNC people.

Transgender: an adjective that is an umbrella term used to describe the full range of people whose gender identity and/or gender role do not conform to what is typically associated with their sex assigned at birth. Although the term "transgender" is commonly accepted, not all TGNC people self-identify as transgender.

Transgender man, trans man, or transman: a person whose sex assigned at birth was female, but who identifies as a man (see FTM).

Transgender woman, trans woman, or transwoman: a person whose sex assigned at birth was male, but who identifies as a woman (see MTF).

Transition: a process some TGNC people progress through when they shift toward a gender role that differs from the one associated with their sex assigned at birth. The length, scope, and process of transition are unique to each person's life situation. For many people, this involves developing a gender role and expression that is more aligned with their gender identity. A transition typically occurs over a period of time; TGNC people may proceed through a social transition (e.g., changes in gender expression, gender role, name, pronoun, and gender marker) and/or a medical transition (e.g., hormone therapy, surgery, and/or other interventions).

Transsexual: term to describe TGNC people who have changed or are changing their bodies through medical interventions (e.g., hormones, surgery) to better align their bodies with a gender identity that is different than their sex assigned at birth. Not all people who identify as transsexual consider themselves to be TGNC. For example, some transsexual individuals identify as female or male, without identifying as TGNC. Transsexualism is used as a medical diagnosis in the World Health Organization's (2015) International Classification of Diseases version 10.

Two-spirit: term used by some Native American cultures to describe people who identify with both male and female gender roles; this can include both gender identity and sexual orientation. Two-spirit people are often respected and carry unique spiritual roles for their community.

Appendix B
Guidelines for Psychological Practice With Transgender and Gender Nonconforming People

Foundational Knowledge and Awareness

Guideline 1. Psychologists understand that gender is a nonbinary construct that allows for a range of gender identities and that a person's gender identity may not align with sex assigned at birth.

Guideline 2. Psychologists understand that gender identity and sexual orientation are distinct but interrelated constructs.

Guideline 3. Psychologists seek to understand how gender identity intersects with the other cultural identities of TGNC people.

Guideline 4. Psychologists are aware of how their attitudes about and knowledge of gender identity and gender expression may affect the quality of care they provide to TGNC people and their families.

Stigma, Discrimination, and Barriers to Care

Guideline 5. Psychologists recognize how stigma, prejudice, discrimination, and violence affect the health and well-being of TGNC people.

Guideline 6. Psychologists strive to recognize the influence of institutional barriers on the lives of TGNC people and to assist in developing TGNC-affirmative environments.

Guideline 7. Psychologists understand the need to promote social change that reduces the negative effects of stigma on the health and well-being of TGNC people.

(*Appendices continue*)

Life Span Development

Guideline 8. Psychologists working with gender-questioning and TGNC youth understand the different developmental needs of children and adolescents and that not all youth will persist in a TGNC identity into adulthood.

Guideline 9. Psychologists strive to understand both the particular challenges that TGNC elders experience and the resilience they can develop.

Assessment, Therapy, and Intervention

Guideline 10. Psychologists strive to understand how mental health concerns may or may not be related to a TGNC person's gender identity and the psychological effects of minority stress.

Guideline 11. Psychologists recognize that TGNC people are more likely to experience positive life outcomes when they receive social support or trans-affirmative care.

Guideline 12. Psychologists strive to understand the effects that changes in gender identity and gender expression have on the romantic and sexual relationships of TGNC people.

Guideline 13. Psychologists seek to understand how parenting and family formation among TGNC people take a variety of forms.

Guideline 14. Psychologists recognize the potential benefits of an interdisciplinary approach when providing care to TGNC people and strive to work collaboratively with other providers.

Research, Education, and Training

Guideline 15. Psychologists respect the welfare and rights of TGNC participants in research and strive to represent results accurately and avoid misuse or misrepresentation of findings.

Guideline 16. Psychologists Seek to Prepare Trainees in Psychology to Work Competently With TGNC People.

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DOC. 69-26

DEFENDANT'S EXHIBIT 26

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER, *et al.*,	)	
Plaintiffs,	)	
v.	)	No. 2:22-cv-00184-LCB-SRW
KAY IVEY, in her official capacity as Governor of the State of Alabama, *et al.*,	)	
Defendants.	)	

DECLARATION OF CORINNA COHN

My name is Corinna Cohn. I am over the age of 19, I am qualified to give this declaration, and, I have personal knowledge of the matters set forth herein.

In or about 2nd grade, I saw a psychologist for problems related to being bullied and emotional regulation. After less than a year, my parents chose to discontinue therapy. I continued to be bullied and had problems forming friendships. Other boys excluded me from social activities. Later in elementary school I began to pray to be made into a girl, which I thought would allow me to fit in better. This became a fixation for me.

In high school, I confessed to my parents that I wanted to become a woman. They brought me to see the same psychologist I'd had as a child, and she diagnosed me with having gender identity disorder. Upon receiving this diagnosis, my parents again chose to discontinue my therapy. I continued to have problems socializing at school and experienced depression and anxiety on a daily basis.

At the age of 17, I gained access to the Internet. This was prior to the popularization of the World Wide Web, but I was able to use message boards and chat in order to find other members of what today would be called the "trans community". Adult transgender women befriended me, supplied me with validation and support, and provided information on how I could transition to also become a transgender woman.

At the age of 18, I resumed my sessions with my psychologist with the goal of receiving a prescription for cross-sex hormones and eventual sex reassignment surgery. Due to my prior relationship with my psychologist, I was able to gain a letter of recommendation to an endocrinologist and was prescribed estrogen. The endocrinologist was referred to me by transgender friends on the Internet. I began living as a woman and had my legal identification updated to reflect my chosen name.

I had sex reassignment surgery in Neenah, Wisconsin in 1994. I was only 19 years old. Securing the appointment required letters from two therapists along with a letter from my endocrinologist. My surgeon told me I was the second-youngest patient he had operated on. The surgery involved removal of my testicles, penectomy, and vaginoplasty. It was successful and without complication.

After healing from my sex change surgery I thought that my transition journey was over. I discontinued therapy, and I began focusing on my career. I found it was easier to socialize and make new friends with my new confidence and feelings of being my authentic self. As I reached my late twenties, my friends began pairing off and starting families. I discovered that it was very difficult to find a partner who wanted to do the same with me.

Although I was in denial for several years, I eventually realized that my depression and anxiety related to my gender identity had not resolved. It was not unusual for me to spend entire weekends in my room crying and entertaining thoughts of suicide.

In my mid-thirties I became interested in radical feminism. I am not a feminist, nor have I ever been, but I wanted to reconcile how feminist concepts applied to people like myself: males who try to turn ourselves into women. One of the concepts I found pivotal was the feminist criticism of biological essentialism, which challenges the idea that men and women are destined to fulfill rigid sex roles. Once I understood this criticism I realized that my more stereotypically feminine attitudes and behaviors did not therefore make me a woman, but rather a feminine man. In retrospect, my self-perception of being a woman also required that I overlook or discount traits that are more stereotypically masculine. Although it took time for this realization to fully sink in, a side effect was that I stopped having bouts of depression and anxiety related to my gender identity. I have not had any depressive episodes related to gender identity in ten years. As a teenager I was unprepared to understand the consequences of my decision to medicalize my transition despite the rigorous controls that were then in place to ensure that patients would not be harmed from gender affirming care.

In 2019, I co-founded a non-profit dedicated to advocating for patients of gender care services. Through the Gender Care Consumer Advocacy Network (GCCAN), I have spoken with other patients and gender clinicians to identify opportunities that can benefit patients and improve the quality of care delivered. The gender clinicians I have spoken with have admitted that they do not follow the World Professional Association of Transgender Health standards of care because they are viewed to be needlessly restrictive. It is GCCAN's position to oppose

criminalization of gender affirmative care, but it is evident that gender clinicians treating adolescents are not abiding by the existing standards of care and that they are not self-regulating. Individuals are in a difficult position to be made whole when injured as it is common for transgender patients to rationalize or forgive poor treatment lest they lose access to their providers altogether. The reticence of gender clinicians to avoid harming their patients has created a vacuum for legislators to address.

I wish I could persuade other boys who wish to become women that the changes they seek are only superficial. Hormones and surgery are unable to reveal an authentic self, and anyone who promises otherwise is, in my opinion, deliberately misleading young people to follow a one-way track to a lifetime of medicalization. Although some people may choose to transition, and may even enjoy a higher quality of life, there is no reason why this irreversible decision needs to be made in adolescence. Adults who advocate for adolescent transition do so without understanding what tradeoffs early transition entails, which includes the loss of fertility, the likelihood of sexual dysfunction, and the likelihood of surgical complication inflicted at an early age from elective procedures. Unfortunately, I do understand some of these tradeoffs. While I would not want to see well-meaning family doctors prosecuted for trying to help a dysphoric child, until such a time as there is clear evidence that adolescent transition is likely to help, adolescent gender affirming care should be heavily scrutinized.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct. Executed on April 26, 2022.

Corinna Cohn

DOC. 69-27

DEFENDANT'S EXHIBIT 27

UNITED STATES DISTRICTCOURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity As Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official Capacity as District Attorney for Jefferson County.

Defendants

CIVIL ACTION # 2:22-cv-00184-LCB-SRW

Declaration of Sydney Wright In Support of Defendants' Opposition to Plaintiffs' Motion for Preliminary Injunction

I, Sydney Wright, declare as follows:

1. I am over the age of 18 years and am not a party to this action. I have actual knowledge of the following facts and if called upon to testify to them could and would do so competently. I am submitting this Declaration in support of Defendants' opposition to Plaintiffs' Motion for a Temporary Restraining Order and Preliminary Injunction.

2. Alabama's Vulnerable Child Compassion and Protection Act ("VCCAP") is a necessary, potentially life-saving law that will protect vulnerable children and their parents from the heartbreaking regret, irreversible physical changes, and emotional pain that I have experienced after undertaking medical interventions aimed at "transitioning" me from a female to a male.

3. I'm a 23-year-old woman who spent a year as a "transman" after being rushed into taking mega doses of testosterone at age 18.

4. I began to identify as transgender in 2017 during counseling after reading about transgenderism on the internet. I had not experienced feelings of gender dysphoria prior to this time.

5. A neighborhood boy engaged in sexually touching with me from age 5 to 12. This awakened sexual feelings at too young an age and caused me to feel unsafe.

6. I was very tomboyish growing up and was sometimes bullied. I began having same-sex attractions as a teen. I was raised in a strict religious home, where homosexuality was frowned upon. When my father learned that I had same-sex attractions he kicked me out of his house (my parents divorced when I was 12) and I went to live with my mother.

7. I was first introduced to transgenderism on social media at around age 18. I began to question if I was really a man because I was attracted to girls.

8. I cut my long blond hair, which caused me to look more masculine. This made me want to move quickly through transition.

9. I started seeing a counselor on June 13, 2017. I disclosed to the counselor that I had been sexually molested for years as a child, about my parents' contentious divorce, and about my dysfunctional relationship with both parents. I also disclosed that I was in a dysfunctional marriage to a physically abusive woman who brought and sold drugs.

10. The counselor did not explore how any of this history might be contributing to my dysphoria, but simply asked some questions and diagnosed me with gender dysphoria and gave me a recommendation to a physician for testosterone treatment within five weeks of our first meeting.

11. My frame of mind at the time, at age 18, was that I believed I might have been "born in the wrong body" and needed to correct it. But I was also unsure,

confused, and in need of guidance. Had a professional told me the truth and helped me explore why I was distressed by being a girl (and a lesbian) in a nonjudgmental way, I would not have proceeded with testosterone.

12. However, that was not the case, and I met with the doctor to whom the counselor referred me. The visit lasted less than 10 minutes, during which time the doctor was curt and rude. He asked me for my "hormone letter," but did not open it or read it. He did not ask any questions to confirm that I had gender dysphoria or any questions concerning my medical history or past or present physical condition or symptoms.

13. I told the doctor that I was nervous, and he curtly asked, "Do you want to do this?" and told me I could pick up the testosterone that day. I asked the doctor if he would administer the injections in the office. He said no and told me to go home and look on You Tube to find out how to give myself the shots, indicating "There's no wrong way to do it. I later learned that the shots were supposed to be administered intramuscularly after administering them subcutaneously in my stomach which caused pain and bubbles to form under the skin.

14. My voice began to deepen, which I have found out is going to be a permanent, irreversible change.

15. I gained over 50 pounds and became pre-diabetic. When I mentioned this to the physician during a follow up appointment he just told me to start working out.

16. After about a year on testosterone, test results revealed that my blood was starting to thicken, my red blood cell count was too high, and I was developing a blood disorder that could lead to a heart attack or stroke if not controlled. I did some research and believe this was polycythemia. I began experiencing chest pains and was told I had developed tachycardia.

17. I begam suffering excruciating and constant abdominal pain and could not eat. Testing did not reveal any disorders. I was later diagnosed with irritable bowel syndrome, which I continue to suffer with.

18. The pain was becoming so excruciating that I became suicidal. My mental health was deteriorating as I was suffering from depression, irritability, insecurity, and exhaustion.

19. The changes brought on by the testosterone caused my family tremendous emotional distress. Finally, my grandfather sat me down with tears in his eyes and asked me to stop what I was doing to myself. That was a saving grace. I would have let the treatment kill me before admitting that I had made a mistake. My grandfather's intervention saved my life.

20. I stopped taking testosterone and resumed living as a female. My physical and mental health have improved, but I continue to suffer adverse effects from the treatments, including a deepened voice and digestive issues that I've been told will be permanent.

21. I also suffer extreme regret for the choices I made as a teenager. I trusted the doctors' advice. They were the experts, who was I as a confused and scared 18 year old not to listen to them?

22. But telling an 18-year-old girl that mega-doses of testosterone would fix her mental health problems? They didn't even to talk to me about other treatment options! No doctor or therapist suggested I give myself time to grow up, or suggested counseling for what was causing my feelings – no doctor or therapist told me most young people outgrow their feelings of wanting to be the opposite sex. The only advice I got was to take mega-doses of testosterone.

23. Unfortunately, there are more and more young people like me being deceived every day, being told that the solution to their insecurity and identity problems is to get a "sex change." The problem is, a person's sex can't really be changed. You can take hormones and have cosmetic surgeries, but that doesn't really change your sex, or solve your problems. I wish I knew that when I was younger.

24. The VCCAP Act is a critical and necessary law that will help spare my fellow Alabama citizens from being similar misled and suffering the distress I am

continuing to suffer because of the availability of medical interventions to minors under age 19. This law will save lives.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: April 04/29/2022 2022

Sydney Wright

Sydney Wright

Signature: Sydney E Wright
Sydney E Wright (Apr 29, 2022 18:57 EDT)

Email: [redacted]

DOC. 69-28

DEFENDANT'S EXHIBIT 28

UNITED STATES DISTRICTCOURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity As Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official Capacity as District Attorney for Jefferson County.

Defendants

CIVIL ACTION # 2:22-cv-00184-LCB-SRW

Declaration of Carol Frietas In Support of Defendants' Opposition to Plaintiffs' Motion for Preliminary Injunction

I, Carol Frietas, declare as follows:

1. I am over the age of 18 years and am not a party to this action. I have actual knowledge of the following facts and if called upon to testify to them could and would do so competently. I am submitting this Declaration in support of Defendants' opposition to Plaintiffs' Motion for a Temporary Restraining Order and Preliminary Injunction.

2. Alabama's Vulnerable Child Compassion and Protection Act ("VCCAP") is a necessary, potentially life-saving law that will protect vulnerable children and their parents from the heartbreaking regret, irreversible physical changes, and emotional pain that I have experienced after undertaking medical and surgical interventions aimed at "transitioning" me from a female to a "male."

3. As a youth, I was what today is called "gender non-conforming," but I lived in a household where gender expression was strictly aligned with cultural stereotypes. I was not allowed to wear boys' clothes or play boys' sports.

4. At puberty I realized I was same-sex attracted with crushes on girls. I became depressed and anxiety-ridden as I feared what "being gay" might mean to how I lived my life and my family relationships. I dropped out of school.

5. At age 20, I began to meet other LGBT youth and my life stabilized. However, I also learned that many masculine females, like me, felt that they were "born in the wrong body" and were transitioning, so I adopted that persona.

6. I went to a gender therapist who diagnosed me with gender dysphoria and told me that transition was the only treatment that would alleviate my discomfort and anxiety.

7. However, at that time there were gatekeeping standards for gender transition, which required that I first live as man for six months, including using a male name, showing a male appearance, and using male spaces. I had very large breasts and could not pass for a male in male spaces, so I did not pursue testosterone at that time. I viewed myself as a male trapped in the "wrong body," but my mental health otherwise was stable.

8. In 2014, I revisited the idea of transitioning, believing it would make me feel better because I was undergoing trauma in various forms. My grandmother who had practically raised me died. I had suffered severe abuse and neglect in childhood, and in retrospect believe I was experiencing symptoms of PTSD from that. I had just become a new mother a couple of months before my brother-in-law committed suicide.

9. I spiraled downward and wanted out. I couldn't commit suicide because I was a mother, so I returned to the idea of transition, believing it would help me feel better. By that time the requirements for testosterone had lessened. I went to Planned Parenthood for testosterone and was given it right away, with no information. I was not given any information on uterine atrophy, vaginal atrophy,

or other effects of testosterone and the staff did not talk about any of my emotional or mental health issues.

10. Four months after starting testosterone, I went to a plastic surgeon for a mastectomy. I needed a letter from a therapist and received one from the therapist who had affirmed me and originally recommended transition. As was true with testosterone, I was not given any information about the procedure. Instead I had a consultation with the surgeon, who said "this is what we are going to do," drew on my chest, took pictures and asked me what I wanted out of the surgery. He said "we'll create a masculine looking chest, you'll look great."

11. During the first four months on testosterone menstruation stopped, my sex drive went way up, my voice deepened, and facial and body hair came in. As I continued on testosterone, my personality changed drastically and my verbal abilities declined. Testosterone lowered and muted my emotions and empathy, but also gave me a lot of energy and a sense of a high. My depression and anxiety worsened to the point that I was having such severe panic attacks that I could not leave home. I told my doctors that I thought the testosterone was making the anxiety worse, but they said no.

12. I went to a psychiatrist to specifically to deal with the depression and I was provided with an anti-depressant that really worked. I felt mentally stable and able to address the trauma that led me to transition.

13. Within a month of starting the anti-depressant, I realized that I had not needed to transition. It was the biggest mistake I had ever made. I did not detransition for a year because I couldn't believe that it was so easy, *i.e.*, that anti-depressants alleviated my depression and enabled me to think clearly and reason better. This allowed me address my internalized homophobia and childhood abuse through therapeutic means.

14. Meanwhile, my health began going downhill. Before going on testosterone, I had no health problems. After being on it for four years, I was pre-diabetic, had high cholesterol, and had a high red blood cell count to the point that doctors were recommending that I donate blood to reduce the volume.

15. I stopped taking testosterone and four months later my blood work was back down to normal. I thought to myself "How do they [doctors] not know about this?" Going off testosterone allowed me to finally sleep. I felt like I never slept all the time that I was taking testosterone. Going off testosterone also helped with empathy and other emotions. My personal relationships, including my relationship with my wife, were better.

16. I believe that healthcare providers did not ask me about mental health issues because they believed that those issues were caused by gender dysphoria and that transitioning would fix the problem. In fact, the opposite was true.

17. I would have been spared physical, psychological, and emotional losses if I had received a proper diagnosis and treatment for PTSD and depression before undergoing years of medical and surgical interventions. Alabama's VCCAP Act is necessary and essential because it will give children and adolescents the chance to work through and address their underlying issues such as depression or PTSD effectively without being pulled onto the affirmation conveyor belt. Hormones and surgery are irreversible decisions that children and adolescents are incapable of making.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: April 29, 2022.

Carol Freitas

DOC. 69-29

DEFENDANT'S EXHIBIT 29

UNITED STATES DISTRICTCOURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity As Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official Capacity as District Attorney for Jefferson County.

Defendants

CIVIL ACTION # 2:22-cv-00184-LCB-SRW

Declaration of Barbara F.*
In Support of Defendants'
Opposition to Plaintiffs'
Motion for Preliminary Injunction

I, Barbara F.[1] declare as follows:

1. I am over the age of 18 years and am not a party to this action. I have actual knowledge of the following facts and if called upon to testify to them could and would do so competently. I am submitting this Declaration in support of Defendants' opposition to Plaintiffs' Motion for a Temporary Restraining Order and Preliminary Injunction.

2. Alabama's Vulnerable Child Compassion and Protection Act ("VCCAP") provides parents necessary protections against manipulation and coercion on the part of health care providers, ex-spouses and confused children to comply with demands for medical and surgical interventions aimed at "affirming" a child's professed discordant gender identity under threats of alienation or loss of a child to suicide.

3. Because there is no such parent and child-protective law in place in my home state, I have been subjected to alienation from my daughter, coercion, manipulation, and blatant disregard for my parental right to make medical and mental health decisions for my child. The VCCAP will prevent parents and children in Alabama from suffering similar harms. It will actually restore the rights of all parents, not just those who agree with demands for "gender-affirming" medical

[1] Declarant is submitting this Declaration using a pseudonym to protect the privacy of her children and other family members.

interventions, to make medical and mental health care decisions for their children that are truly in the best interest of their child's healthy development.

4. When my daughter, B., was 11 years old she said she identified as a boy and wanted to be referred to by an alternate male name. This occurred after she had endured ridicule from her father (my ex-husband) for laughing like me and witnessed her brother getting preferential treatment from her father.

5. B's father championed her new 'male" identity and began harassing me for not affirming it. He accused me of emotional abuse and called child protection services against me. B's father convinced B. to not participate in visitations with me unless I affirmed the discordant identity.

6. Shortly after B announced that she identified as a boy, I acted on the advice of our family physician and took B to a gender clinic. I naively believed that I would have an opportunity to seek a psychological evaluation and psychological counseling for B. and discuss her sudden identification as a boy prior to any interventions aimed at "affirming" her choice.

7. However, when my daughter and I arrived at the clinic the staff psychologist did an evaluation, but said that she did not have time to see B. regularly to give more in depth psychological help. I stated that believed that B. needed to have psychological counseling before any medical interventions were begun.

8. I told the clinic staff that I did not consent to further consultations regarding medical intervention. I had done some research on the puberty blockers and hormone therapy being suggested for my daughter and was concerned about their unproven safety and efficacy.

9. The clinic staff ignored my directions and, without telling me, an endocrinologist met with my 12-year-old daughter privately and with her father to discuss beginning puberty blockers. The endocrinologist then came in to meet with my daughter and me. When I raised concerns about the puberty blockers, the endocrinologist said that there are "no studies that show the drugs aren't safe." She also told me *in front of* my daughter that I needed "to get on board [with providing puberty blockers and hormones] if I don't want my daughter to commit suicide."

10. I have repeatedly notified clinic staff orally and in writing that I do not consent to their treating my daughter. My ex-husband and I have shared decision-making authority for our children's medical care, so no care is supposed to be provided unless both of us consent. Nevertheless, the clinic and B.'s father have continued with regular consultations with my daughter without my consent.

11. I have reviewed documents from the clinic in which staff say that they plan to "convince me" to consent to the medical interventions, completely disregarding my legal rights and role as B's mother.

12. The availability and promotion of "gender affirming" medical interventions for minors such as my daughter has been used to drive a wedge between B. and me, to prevent B. from receiving counseling for underlying mental health issues and to expose her to unknown long-term medical and mental health consequences without my consent. The notion of "informed consent" or parental decision-making is non-existent.

13. The VCCAP Act prevents such coercive manipulation and potential harm against Alabama's vulnerable children and should be upheld for the protection of children and their families.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: April 28, 2022.

/s/ Barbara F.
Barbara F. (pseudonym)
[original signature available on request]

DOC. 69-30

DEFENDANT'S EXHIBIT 30

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity As Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official Capacity as District Attorney for Jefferson County.

Defendants

CIVIL ACTION # 2:22-cv-00184-LCB-SRW

Declaration of John Doe*
In Support of Defendants'
Opposition to Plaintiffs'
Motion for Preliminary Injunction

I, John Doe[1], declare as follows:

1. I am over the age of 18 years and am not a party to this action. I have actual knowledge of the following facts and if called upon to testify to them could and would do so competently. I am submitting this Declaration in support of Defendants' opposition to Plaintiffs' Motion for a Temporary Restraining Order and Preliminary Injunction.

2. I am the father of two sons including a 17-year-old, C. (a pseudonym), who is being seen by Dr. Stephen Rosenthal and his team at UCSF, who is an expert witness who has been retained by the Plaintiffs in this case.

3. I have read Dr. Rosenthal's Declaration. I can testify that his statements regarding the standard of care for transgender children, and particularly his claims that parents have the opportunity to exercise informed consent regarding medical interventions for their child are not true with regard to my son.

4. Dr. Rosenthal claims that medical treatment is done in consultation with the patient's family. In my case this is not true. Dr. Rosenthal's institution has actively worked to prevent my participation in my son's care to the point of providing information to the attorney representing my son in family court aimed at

[1] Declarant is submitting this Declaration using a pseudonym for himself and his son to protect the privacy of his child and family.

stripping me of custody because I would not affirm my son in a discordant gender identity.

5. In fact, I knew nothing about my son receiving life-altering medical interventions until I received a statement from my insurance carrier showing that it had paid more than $209,000 to a child and adolescent gender clinic at UCSF. Even then, I did not know what the payment was for until I asked my ex-wife. She emailed me that she was "pleased" to report that our son had been given an implant of Supprelin (used to suppress testosterone) and was receiving estradiol (estrogen) pills.

6. My research on these substances showed that they chemically castrate patients and are even used specifically for that purpose in some cases for sex offenders. Yet here my 17-year-old son was receiving these drugs from Dr. Rosenthal ostensibly to improve his health and well-being.

7. I have learned that Supprelin is Dr. Rosenthal's preferred method for administering puberty blockers for adolescents like my son. Supprelin requires surgical implantation, meaning that it is a surgical intervention administered to children under the age of 18, which is contrary to Dr. Rosenthal's testimony that surgical interventions are not prescribed for minors and not recommended by the "Standards of Care."

8. I contend that Dr. Rosenthal's surgical implantation of Supprelin into my son also violates the family court's custody order, which UCSF has a copy of, which states that my son is not permitted to "undergo any gender identity related surgery" until he is 18 absent a written agreement of **both parents** or order of the court. I did not agree to the surgical implantation, nor is there any court order permitting it, yet C.'s records show a surgical procedure performed on him to insert the Supprelin. This further calls into question Dr. Rosenthal's testimony regarding the "standards of care" employed in "gender-affirming" interventions.

9. Dr. Rosenthal's testimony also contradicts his actions with my son in that after UCSF surgically implanted my 17 year old son with Supprelin LA (without my knowledge or consent but paid for by my health insurance), Dr. Rosenthal discussed follow-up surgical options with him without both parents present. Dr. Rosenthal discussed breast implants, facial feminization and bottom surgery with my son at age 17 years and 5 months.

10. Rosenthal claims to "provide the patient and their family the information they need to make an informed decision about whether to proceed with the treatment." Again, that is not true regarding the treatment prescribed for my son. When I sought information about alternatives, such as "watchful waiting," and whether patients are assessed by Ray Blanchard's typology of transsexuals, instead

of receiving an answer I was subjected to actions in the family court aimed at stripping me of custody because of my questioning of the protocols at UCSF.

11. Similarly, when I provided Dr. Rosenthal with research that I had found which suggests that puberty blockers can cause cognitive harm and asked questions I received no response, contrary to his testimony that parents are involved to ensure everyone involved has the information they need to make an informed decision.

12. Further contradicting his claim of "informed" decision-making is seen in the form presented to and discussed with my then 16 year old son. The form did not indicate that permanent and irreversible sterility is a potential and likely outcome of the recommended treatment, particularly when puberty blockers are combined with estrogen as is the case with C.

13. Dr. Rosenthal's actions with regard to the treatment of my son differ significantly from the "safe and effective" protocols that he claims are part of "gender-affirming" treatments. His refusal to respond to my questions as the concerned father of his patient belie his testimony about the information-rich and collaborative environment he claims is part of the "gender-affirming" care he provides.

14. My experiences with Dr. Rosenthal instead point to an ideologically driven conveyor belt onto which vulnerable children like my son are placed and processed without the safeguards usually inherent in medical procedures.

15. Parental participation is tolerated only so long as it is affirming of the ideology. If, as in my case, the parent asks questions instead of immediately affirming the agenda, then that parent is disregarded even to the point, as in my case, of having their rights stripped away.

16. The availability of "gender-affirming" medical interventions for vulnerable children experiencing distress about changes in their bodies enables the ideological conveyor belt to proceed unhindered, leaving in its wake sterilized, drug-dependent and dysfunctional young adults, shattered relationships, and distrust in the medical profession.

17. Alabama's efforts to ban these treatments for minors in the VCCAP is necessary to prevent the irreversible and incalculable harms caused by the unchecked gender medicine machine. The VCCAP law will save Alabama families from similar devastation.

Dated: April 28, 2022.

John Doe

)hn Doe (pseudonym)

DOC. 69-31

DEFENDANT'S EXHIBIT 31

UNITED STATES DISTRICTCOURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity As Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official Capacity as District Attorney for Jefferson County.

Defendants

CIVIL ACTION # 2:22-cv-00184-LCB-SRW

Declaration of John Roe*
In Support of Defendants'
Opposition to Plaintiffs'
Motion for Preliminary Injunction

I, John Roe[1] declare as follows:

1. I am over the age of 18 years and am not a party to this action. I have actual knowledge of the following facts and if called upon to testify to them could and would do so competently. I am a resident of Alabama and the father of a son who said he was gender dysphoric and who was socially transitioned at school without our knowledge and referred for "gender transition" medical treatments. I am submitting this Declaration in support of Defendants' opposition to Plaintiffs' Motion for a Temporary Restraining Order and Preliminary Injunction.

2. Alabama's Vulnerable Child Compassion and Protection Act ("VCCAP") will protect vulnerable children and provide parents necessary protections against manipulation and coercion on the part of health care providers and confused children to comply with demands for medical and surgical interventions aimed at "affirming" a child's professed discordant gender identity under threats of alienation or loss of a child to suicide.

3. The VCCAP will provide parents with the information necessary to exercise their rights to make mental health and medical care decisions for their children without the secrecy and interference from the government, particularly

[1] Declarant is submitting this Declaration using a pseudonym to protect the privacy of his child and other family members.

public school and coercive influence of mental health professionals, that I experienced.

4. My son, J., has been diagnosed with ADHD and anxiety. He never expressed any distress about his sex until middle school, his eighth grade year. During that time, J. spent a lot of time online and was interested in anime and role-playing games. He also became friends with a girl who identified as trans, which piqued his curiosity.

5. Between eighth and ninth grade, J. left a note for his mother stating that that he was "transgender." He signed the note "your daughter." My wife did not tell me about the note at that time. She spoke with J. who said he "felt more female than male."

6. J. later left me a similar note saying that he had gender dysphoria as long as he can remember.

7. During a therapy session J. said he started feeling that he was transgender in the 8th grade, but then "did his research" through online searches and confirmed his conclusion. I learned that he had watched internet trans influencers, viewed YouTube videos, and answered online questionnaires to self-diagnose gender dysphoria in eighth grade.

8. I learned after the fact that J.'s public school had facilitated J. socially transitioning to a female gender identity without the knowledge or consent or my

wife or me. Without informing us, the school went along with J.'s wishes to be called by a female name and pronouns in ninth grade. We also later learned that J. was wearing a skirt at school without our knowledge. I found out about the new female name being used by the school as if by accident through communication with a teacher and learned that J. was using female pronouns at school through an art project.

9. We took J. to a therapist who did not do a psychological evaluation, but diagnosed him with OCD, anxiety, and depression as well as the previously diagnosed ADHD.

10. During a family therapy session, the therapist ignored J.'s other co-morbidities and focused solely on gender dysphoria. The therapist called J. "courageous." The therapist printed out a handout from an advocacy group. She was trying to bring my wife and I on board with letting our child lead with diagnosis and treatment.

11. The therapist said that kids have a sense of their identity by age 3 or 4, but provided no scientific support.

12. *With J. present*, the therapist told me and my wife that kids are more likely to attempt suicide and run away from home if they are not affirmed in their chosen identity.

13. After the third or fourth visit the therapist recommended that we take J. to Magic City gender clinic to receive puberty blockers or cross-sex hormones.

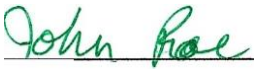
14. We did not follow up on that recommendation. I researched the clinic and the proposed interventions and was concerned about what the interventions would steer my son toward. I believed that for a child of J.'s age struggling as he was with self-esteem, amplified by his other co-morbidities, these medical interventions were not going to solve his real underlying issues long-term. I believed that the interventions were permanent changes with life-long consequences to a child's body for a problem of the mind that could be solved by a less invasive route.

15. I believed my son needed to understand that his body was not the problem, but that his thoughts were and that they could be assisted to bring him more peace with his body through therapy.

16. A total ban on these treatments for children, such as provided in the VCCAP Act is necessary because the medical gatekeepers are not doing their job. They are not following proper professional protocols, are not safeguarding confused adolescents, and not self-regulating. They are allowing adolescents, who are prone to making rash decisions, to self-harm and harm their future. They are also pressuring parents with talk of suicide in front of the adolescent. These treatments have unknown long-term effects and are experimenting on children.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: April 28, 2022.



John Roe (pseudonym)

No. 22-11707

UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT

PAUL A. EKNES-TUCKER, et al.,
Plaintiffs-Appellees,

&

UNITED STATES OF AMERICA
Intervenor-Plaintiff-Appellee,

v.

GOVERNOR OF THE STATE OF ALABAMA, et al.,
Defendants-Appellants.

On Appeal from the United States District Court
for the Middle District of Alabama
Case No. 2:22-cv-184-LCB

APPELLANTS' APPENDIX VOLUME IX OF XIII

Christopher Mills
SPERO LAW LLC
557 East Bay St.,
#22251
Charleston, SC 29451
(843) 606-0640
cmills@spero.law

Steve Marshall
Attorney General
Edmund G. LaCour Jr.
Solicitor General
A. Barrett Bowdre
Thomas A. Wilson
Deputy Solicitors General
James W. Davis
Deputy Attorney General
Benjamin M. Seiss
Assistant Attorney General
STATE OF ALABAMA
OFFICE OF THE ATTORNEY GENERAL
501 Washington Ave.
Montgomery, AL 36130
(334) 242-7300
Edmund.LaCour@AlabamaAG.gov

July 5, 2022

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DEFENDANT'S EXHIBIT 32

UNITED STATES DISTRICTCOURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity As Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official Capacity as District Attorney for Jefferson County.

Defendants

CIVIL ACTION # 2:22-cv-00184-LCB-SRW

Declaration of Kristine W.*
In Support of Defendants'
Opposition to Plaintiffs'
Motion for Preliminary Injunction

I, Kristine W. [1] declare as follows:

1. I am over the age of 18 years and am not a party to this action. I have actual knowledge of the following facts and if called upon to testify to them could and would do so competently. I am submitting this Declaration in support of Defendants' opposition to Plaintiffs' Motion for a Temporary Restraining Order and Preliminary Injunction.

2. Alabama's Vulnerable Child Compassion and Protection Act ("VCCAP") provides parents necessary protections against manipulation and coercion on the part of health care providers and children to comply with demands for medical and surgical interventions aimed at "affirming" a child's professed discordant gender identity under threats of alienation or loss of a child to suicide and pitting children against their parents.

3. Because there is no such parent and child-protective law in place in my home state, I have been subjected to coercion, manipulation, alienation from my daughter and blatant disregard for my parental right to make medical and mental health decisions. The VCCAP will prevent parents and children in Alabama from suffering similar harms. It will actually restore the rights of all parents, not just those who agree with demands for "gender-affirming" medical interventions, to make

[1] Declarant is submitting this Declaration using a pseudonym to protect the privacy of her children and other family members.

medical and mental health care decisions for their children that are in the best interests of their children and their healthy development into adulthood.

4. My daughter, S., had been diagnosed with OCD, Tourette's Syndrome and bulimia when she began intensive outpatient psychiatric treatment for suicidal ideation. She had spent copious amounts of time online during the pandemic lockdown and was influenced by transgender ideology presentations on the internet.

5. At age 13, S. suddenly declared, in a manner which sounded scripted, that she believed she was a boy and wanted to use a male name. When I spoke to her caregivers, they focused on S. wanting to go by a male name and pronouns. I asked them to address S.'s self-harm, anxiety and bulimia, but they refused. Instead, they told me that I needed to ask, "How can we help you with your gender identity?"

6. The staff told me that "transgender identity is very trendy in the hospital setting right now." They continued to confirm S's obsessive thoughts. During one visit, with S present, the caregivers stated that "trans" people are more likely to commit suicide if not affirmed. In another instance, staff at the hospital said, "You must affirm or she will kill herself. Do you want live son or dead daughter?" The school counselor made similar statements.

7. Following the psychiatric treatment, S. returned to seeing psychiatrists and counselors that she had previously been seeing. Her medication was adjusted, she stopped self-harming and her tics were better controlled.

8. After doing more research and believing it important to ground our child in reality, S's father and I no longer used her preferred male name and pronouns at home. I told S. that she could change her name if she desired when she was an adult but until then she did not get to choose her name.

9. S.'s pediatrician told her father, *in front of S.*, that he needed to use the "chosen" name and to not do so was damaging to her emotionally. That conversation put a wedge between father and daughter. We have switched her to our adult practice so we would not have to deal with doctors pushing the transgender agenda on our child.

10. S. asked why her own parents would not use her new name but everyone else did. She felt that we cared more about the name than her feelings of suicide because of the comments made by doctors about how fragile trans kids are. I explained to her that no one loved her as much and cared about her mental health more than do her father and I, who want to do what was best for her in the long run, which was to hold reality for her.

11. S. had asked for testosterone, but after doing my own research I became concerned about the potential harms to my female child and resisted. S. has since announced "I'm not a boy – boys are awful" and is dressing on and off as a girl. Her mental health is improving.

12. S. has a few separate friend groups across three different schools. Of 10-15 children, only one identifies as her natal sex. These numbers mimic known social contagions such as anorexia and cutting behavior. It is statistically impossible and improbable that all these children will continue to identify as another gender into adulthood.

13. S uses a "chosen" name at school. When enrolling her, I had no choice but to go along with it because the school's policy was to do whatever the child wanted regardless of parental wishes. So I registered her with the "chosen" name as a nickname. (The counselor has since confided to me that it is a huge problem for those who change the whole name when applying to college because the transcripts have different names). I believe that if the school and teachers used her given name, it would be easier for her to completely drop the trans narrative.

14. To allow the medical establishment to push children into irreversible treatments and to pit objecting parents against their children is a great tragedy. Families are being ruined. "Gender-affirming" medical interventions should not be available for children.

15. The VCCAP Act prevents coercive manipulation and potential harm against Alabama's vulnerable children and should be upheld for the protection of children and their families.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: April 28, 2022.

Kristine W. (pseudonym)

DOC. 69-33

DEFENDANT'S EXHIBIT 33

UNITED STATES DISTRICTCOURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity As Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official Capacity as District Attorney for Jefferson County.

Defendants

CIVIL ACTION # 2:22-cv-00184-LCB-SRW

Declaration of Yaacov Sheinfeld In Support of Defendants' Opposition to Plaintiffs' Motion for Preliminary Injunction

I, Yaacov Sheinfeld, declare as follows:

1. I am over the age of 18 years and am not a party to this action. I have actual knowledge of the following facts and if called upon to testify to them could and would do so competently. I am submitting this Declaration in support of Defendants' opposition to Plaintiffs' Motion for a Temporary Restraining Order and Preliminary Injunction.

2. Alabama's Vulnerable Child Compassion and Protection Act ("VCCAP") provides parents necessary protections against manipulation and coercion on the part of health care providers and their own distress and confused children to comply with demands for medical and surgical interventions aimed at "affirming" a child's professed discordant gender identity under threats of alienation or loss of a child to suicide. Most importantly, this law protects vulnerable children and young people from grievous harm.

3. Had a law like VCCAP been in effect in my state, my daughter might still be alive today.

4. My daughter, S. had been in counseling for depression since age 15, but had never said anything about gender dysphoria to her counselor.

5. At age 17, S.'s mother told me that S. was transgender. I thought it was a bad idea to pursue transitioning, nevertheless, I told S. that I would help her in any other way.

6. S. had suffered a lot of rejection in school and was seeking affirmation. Five of her friends announced that they were transgender. When S. said she was transgender too it was seen as fashionable and she finally had the peer acceptance she had not previously experienced in high school.

7. When S. went to college at age 18, unbeknownst to me, she began taking testosterone. When I met with her at school, I noticed she was very depressed.

8. A social worker who was also present at my meeting with S. told me that S. was going to get a double mastectomy.

9. When I objected to her taking such a drastic step at such a young age, the social worker told me I was an "Israeli chauvinist", a typical chauvinist male, who doesn't love his child enough. Her approach was that this is what we're going to do and you need to just get on board.

10. The social worker assured me that everything would be fine if I just loved my daughter.

11. After this meeting S. refused to talk to me and began threatening that she would kill herself if she did not get the surgery she wanted. She had a double mastectomy at age 19.

12. I witnessed distressing physical changes in S. The changes in her because of the testosterone were so distressing that I even considered suicide at one time. S. gained and lost lots of weight, had pain all over her body, suffered from

mood swings, could not concentrate, and was briefly hospitalized in a psychiatric hospital.

13. S. was deeply depressed and taking a significant number of medications along with testosterone. I kept assuring her that I would do whatever I could to help her.

14. S.'s pain became so intense that she began taking Fentanyl. S. was found dead on August 6, 2021 with Fentanyl and alcohol in her system. She was 28.

15. Alabama's VCCAP and similar laws to ban medical interventions for minors are critical important because children, especially children with mental health issues such as S, cannot make clear mature decisions about their future, particularly when neither they nor their parents are provided with full information about the effects of these interventions. We know from research that the brain is not fully formed until a person reaches her mid-20s, so even a healthy 18-year-old does not have the mental maturity to make significant decisions such as taking cross-sex hormones that will sterilize them and surgically mutilating their bodies. This is particularly true when, as was true with my daughter, neither the child nor the parents are informed about the medical side effects and harms that the medical interventions cause.

16. The medical interventions that were promoted to my daughter with a promise that they would relieve her problems, in fact, increased them and led to her death.

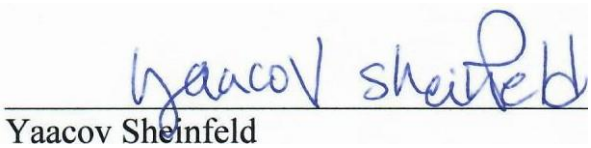
17. Parents should not be put in the position to make decisions for their child that result in sterilization, losing healthy body parts, or other life-long harms, especially when children have mental health issues that are not being addressed.

18. Laws like VCCAP protect parents from being coerced into making these decisions through manipulation and threats like the one leveled at me that my child would commit suicide if she did not get the intervention she demanded.

19. I further declare that certain people in our society think and act in a shameful and destructive way such as this cult, peer group pressure, pitching children against their parents, anarchist ideas. The way my child was treated is like an experiment in bad, unfounded pseudosexual theories that do not hold water. They are dangerous, harmful, destroy the subject of treatment, harm their body, and in many cases- kill them. So much for therapy! Ha! What I went through was hell on earth. I say to you all: Stop this madness now!

I declare under penalty of perjury that the foregoing is true and correct.

Dated: April 29, 2022.



Yaacov Sheinfeld

DOC. 69-34

DEFENDANT'S EXHIBIT 34

UNITED STATES DISTRICTCOURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity As Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official Capacity as District Attorney for Jefferson County.

Defendants

CIVIL ACTION # 2:22-cv-00184-LCB-SRW

Declaration of Martha S.*
In Support of Defendants'
Opposition to Plaintiffs'
Motion for Preliminary Injunction

I, Martha S.[1] declare as follows:

1. I am over the age of 18 years and am not a party to this action. I have actual knowledge of the following facts and if called upon to testify to them could and would do so competently. I am submitting this Declaration in support of Defendants' opposition to Plaintiffs' Motion for a Temporary Restraining Order and Preliminary Injunction.

2. Alabama's Vulnerable Child Compassion and Protection Act ("VCCAP") provides parents necessary protections against manipulation and coercion on the part of health care providers and even our own mentally compromised children to comply with demands for medical and surgical interventions aimed at "affirming" a child's professed discordant gender identity under threats of alienation or loss of a child to suicide.

3. The VCCAP will actually restore the rights of all parents, not just those who agree with demands for "gender-affirming" medical interventions, to make medical and mental health care decisions for their children that will protect their healthy physical and mental development and long-term well-being.

4. At age 16, my son, M., began acting out after suffering two traumatic events. When his behavior improved after receiving antibiotics for a sinus infection,

[1] Declarant is submitting this Declaration using a pseudonym to protect the privacy of her children and other family members.

he was diagnosed with Pediatric Auto-immune Neuropsychological Disorder Associated with Strep (PANDAS). PANDAS causes the same kind of psychiatric symptoms that are seen in trans-identified children, *e.g.*, severe anxiety, ADHD, schizophrenia, OCD, and eating disorders.

5. M., who is Caucasian, blonde-haired and blue-eyed, identified as African-American for a semester in high school. Later that year M. told me that he was transgender. When he was home from school during the pandemic M. was depressed and spent a lot of time on the internet asking questions about why he felt so miserable. He was told by sources on Reddit that he was transgender.

6. Our pediatrician referred us to a gender clinic with the expectation that the "experts" at the clinic would help us sort out the issues. Instead the gender clinic staff told me that M. needed to be seen by a gender therapist to get a diagnosis of gender dysphoria.

7. M. had three visits with a gender therapist who did not do any testing and did not address any underlying issues. After the third visit, the therapist prepared a pro forma letter for the clinic that contained an inaccurate history and stated that M. was suffering from gender dysphoria and ready for medical interventions.

8. We saw a psychologist at the gender clinic who after one visit with M. and filling out some questionnaires said that she would recommend that M. see the endocrinologist to be prescribed hormones. She said M. would be put on

spironolactone to block the testosterone instead of puberty blockers, because he was already past most of puberty and on estrogen.

9. I questioned why M. would be recommended for hormone therapy when he did not have a history of gender dysphoria until after he was diagnosed with PANDAS and suffered trauma. The psychologist said, "You have to honor your young person." I replied, "He is not our young person -- he is our child."

10. My husband and I asked to speak to the endocrinologist first to find out about side effects. However, the therapist said we could not see the endocrinologist unless we were ready to get prescriptions for hormones for our son. We said we needed more information.

11. Then a neuropsychologist who was not associated with the gender clinic evaluated our whole family and diagnosed M. with bipolar or possibly dissociative disorder, but not with gender dysphoria. She recommended psychiatric treatment, rather than hormonal treatment without first addressing the other disorders.

12. M. kept demanding hormones because he had been convinced this was what he needed. My husband and I did not follow through on that demand.

However, after M. turned 18 and went away to college, he found a practitioner who prescribed a testosterone suppressor and an estrogen patch. M soon stopped the suppressor because he did not like the effects. He returned home for online

learning in the spring, went on antibiotics and his health improved. He then discontinued the estrogen patch.

14. The availability of medical and surgical interventions for minors puts parents in a terrible bind. Parents are put in a difficult position when we have a mentally and physically ill child who is convinced that he needs an intervention recommended by a physician that is not based on sound science.

15. This experience has damaged both my and M.'s trust in the medical community. If physicians are legally prevented from recommending these interventions, then parents will not be not put at cross purposes with their child and the medical community.

16. The VCCAP Act prevents coercive manipulation and potential harm against Alabama's vulnerable children and should be upheld for the protection of children and their families.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: April 28, 2022.

Martha S. (pseudonym)

DOC. 69-35

DEFENDANT'S EXHIBIT 35

UNITED STATES DISTRICTCOURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity As Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official Capacity as District Attorney for Jefferson County.

Defendants

CIVIL ACTION # 2:22-cv-00184-LCB-SRW

Declaration of KathyGrace Duncan In Support of Defendants' Opposition to Plaintiffs' Motion for Preliminary Injunction

I, KathyGrace Duncan, declare as follows:

1. I am over the age of 18 years and am not a party to this action. I have actual knowledge of the following facts and if called upon to testify to them could and would do so competently. I am submitting this Declaration in support of Defendants' opposition to Plaintiffs' Motion for a Temporary Restraining Order and Preliminary Injunction.

2. Alabama's Vulnerable Child Compassion and Protection Act ("VCCAP") is a necessary, potentially life-saving law that will protect vulnerable children and their parents from the heartbreaking regret, irreversible physical changes, sexual dysfunction and emotional pain that I have experienced after undertaking medical and surgical interventions aimed at "transitioning" me from a female to a "male."

3. From a very young age, I was what is called today "gender non-conforming." I preferred male clothing, I thought I was a "boy" and I wanted to live as one.

4. I grew up in a dysfunctional family in which my mother was often the victim of my father's emotional and verbal abuse. As a result I internalized the message that "my dad would love me if I were a boy."

5. Sexual abuse by a family member between the ages of 10 and 12 further convinced me that being a girl meant being unsafe and unlovable.

6. In sixth grade, I learned about female to male transsexuals. I believed that my distress was caused by not having the "right" body and the only way to live a normal life was to medically transition and become a heterosexual male.

7. At age 19, I began living as a man named Keith and went to a therapist who formally diagnosed me with gender dysphoria. I began testosterone and a year later had a mastectomy. At the time, I believed it was necessary so that what I saw in the mirror matched what I felt on the inside.

8. I never viewed my condition as touching on mental health issues, and neither did the therapist who diagnosed me. The question of whether my self-perception and desire to transition was related to her mental health issues was never explored.

9. After 11 years passing as a man and living what I thought was a relatively "happy" and stable life (which included having a number of girlfriends), I realized that I was living a lie built upon years of repressed pain and abuse. Hormones and surgery had not helped me resolve underlying issues of rejection, abuse, and sexual assault. I came to understand that my desire to live as a man was a symptom of deeper unmet needs.

10. With the help of life coaches and a supportive community, I returned to my female identity and began addressing the underlying issues that had been hidden

in my attempt to live as a man. I experienced depression that I had repressed for years and grieved over the irreversible changes to my body.

11. If someone had walked with me through my feelings instead of affirming my desire to transition, then I would have been able to address my issues more effectively and not spend so many years making and recovering from a grave mistake.

12. Alabama's VCCAP Act is necessary and essential because it will give children and adolescents a chance to walk through their feelings and address their underlying issues effectively without being pulled onto the affirmation conveyor belt. Hormones and surgery are irreversible decisions that children and adolescents are incapable of making.

13. VCCAP is also necessary to protect parents from the coercion and manipulation of their confused children and over-zealous medical practitioners who try to convince parents to consent to the treatments by threatening that their children might be removed from their care or even commit suicide. If the treatments are banned until the children reach majority, then children and health care providers will not be able to use the treatments as a bargaining chip, but will have to explore other alternatives for helping the children.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: April 29, 2022.

KathyGrace Duncan

DOC. 69-36

DEFENDANT'S EXHIBIT 36

UNITED STATES DISTRICTCOURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity As Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official Capacity as District Attorney for Jefferson County.

Defendants

CIVIL ACTION # 2:22-cv-00184-LCB-SRW

Declaration of Jeanne Crowley*
In Support of Defendants'
Opposition to Plaintiffs'
Motion for Preliminary Injunction

I, Jeanne Crowley[1] declare as follows:

1. I am over the age of 18 years and am not a party to this action. I have actual knowledge of the following facts and if called upon to testify to them could and would do so competently. I am submitting this Declaration in support of Defendants' opposition to Plaintiffs' Motion for a Temporary Restraining Order and Preliminary Injunction.

2. Alabama's Vulnerable Child Compassion and Protection Act ("VCCAP") provides parents necessary protections against manipulation and coercion on the part of health care providers and children to comply with demands for medical and surgical interventions aimed at "affirming" a child's professed discordant gender identity under threats of alienation or loss of a child to suicide and without providing parents and children the information needed to understanding the long-term implications and potential harms to children's developing bodies.

3. Because there is no such parent and child-protective law in place in my home state, I have been subjected to coercion, manipulation, alienation from my daughter and blatant disregard for my parental right to make medical and mental health decisions for my child. The VCCAP will prevent parents and children in Alabama from suffering similar harms. It will actually restore the rights of all

[1] Declarant is submitting this Declaration using a pseudonym to protect the privacy of her children and other family members.

parents, not just those who agree with demands for "gender-affirming" medical interventions, to make medical and mental health care decisions for their children that will protect their children's developing bodies and long-term mental health.

4. My husband and I were repeatedly told that the puberty blockers our pre-teen daughter, M., was clamoring for were the answer for her anxiety and distress about her changing body. We were advised that children like M. had high rates of suicide and self-harm and puberty blockers would help by stopping the development of secondary sex characteristics that cause children distress and "give the children time to explore their identity."

5. Gender-affirming mental health and medical professionals assured us that acceding to our daughter's demand for puberty blockers was necessary for her mental health. We were repeatedly assured that the puberty blockers were nothing more than a "pause button" and completely reversible. We were not told that these treatments could cause harm to our child's developing bones or that there were no clinical studies establishing them to be safe and effective as a "treatment" for gender dysphoria in children.

6. Based on these assurances we consented to M. receiving a long-lasting puberty-blocking implant. Once the implant was in place, there was no follow up. I had to initiate contact with the clinic to replace the implant and get necessary lab work.

7. M. previously had psychological evaluations that revealed depression, Autism Spectrum Disorder (ASD) with sensory issues, dyslexia, and dysgraphia. M. had also experienced social trauma. However, none of these issues was addressed by health care professionals once they determined M. had gender dysphoria. Nor did they offer any other treatment options.

8. I learned through my own research that puberty blockers were shown to cause loss of bone density and diminished cognitive development. Healthcare professionals did not inform my husband and me about those harms. When we raised the issue, the doctors responded that they have been prescribing the blockers for many years to treat precocious puberty and the reported bone loss was "nothing to worry about."

9. I had a bone density scan done for M. It revealed that M. has an 11 percent loss of bone density in one hip, 14 percent loss in the other, and a 7 percent loss in the lumbar region. She has developed osteopenia at a time in her life when her bone density should be increasing and her body building a reservoir of strong developing bones as an important protection against osteoporosis in adulthood.

10. When my husband and I confronted the physician to have the puberty blocker implant removed, the doctor recommended that M. continue on to cross-sex hormones, *i.e.*, testosterone. We were not informed this would very likely *sterilize*

our child. I declined, pointing out to the doctor that it is estrogen, not testosterone, that improves bone density.

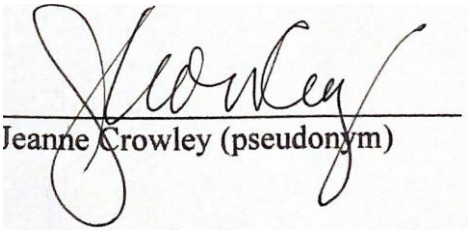
11. Throughout the time that M. was on puberty blockers, we had difficulty finding a therapist to explore M.'s underlying mental health issues. Therapists were unwilling to address anything other than affirming M. as transgender. M. is currently improving working with a psychotherapist we were finally able to find that is willing to explore the underlying issues with M. However, she continues to have loss of bone density that will significantly affect her physical health and growth and having lasting effects possibly for the rest of her life.

12. The availability of these medical interventions for a pre-teen girl distressed by changes in her body meant that neither M nor her healthcare providers would consider other alternatives. VCCAP can overcome that obstacle for parents in Alabama.

13. The VCCAP Act prevents coercive manipulation and potential harm against Alabama's vulnerable children and should be upheld for the protection of children and their families.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: April 28, 2022.



DOC. 69-37

DEFENDANT'S EXHIBIT 37

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity As Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official Capacity as District Attorney for Jefferson County.

Defendants

CIVIL ACTION # 2:22-cv-00184-LCB-SRW

Declaration of Ted H Halley In Support of Defendants' Opposition to Plaintiffs' Motion for Preliminary Injunction

I, Ted H Halley, declare as follows:

1. I am over the age of 18 years and am not a party to this action. I have actual knowledge of the following facts and if called upon to testify to them could and would do so competently. I am submitting this Declaration in support of Defendants' opposition to Plaintiffs' Motion for a Temporary Restraining Order and Preliminary Injunction.

2. Alabama's Vulnerable Child Compassion and Protection Act ("VCCAP") is a necessary, potentially life-saving law that will protect vulnerable children and their parents from the heartbreaking regret, irreversible physical changes, sexual dysfunction and emotional pain that I have experienced after undertaking medical and surgical interventions aimed at "transitioning" me from a male to a "female."

3. Like many of the children who seek the medical and surgical interventions banned by VCCAP, I experienced distress about my sex beginning in my pre-teens. I wanted God to make me a girl and at age eight I fantasized about cross-dressing in my mother's clothes.

4. I continued to experience feelings of wanting to be a woman and struggling with my gender identity between adolescence and age 50, but as a married father of 5 and active duty member of the Air Force I suppressed those feelings.

5. At age 50 I began attending a heterosexual cross-dressing group, and that confirmed for me that I wanted to go further to fully transition.

6. I had facial feminization surgery in 2009 and a second feminization surgery in 2010.

7. In 2010, I also began taking estrogen and spironolactone, which is a testosterone suppressor.

8. In December 2011, I had genital reassignment surgery in which my male genitalia was removed and a "neo vagina" was created. Dilation of the "neo vagina" was very painful for about six months. This surgery is irreversible. I am no longer able to experience sexual sensation and pleasure and have a life-long sexual dysfunction.

9. In December 2011 I also had my name legally changed to "Teresa" and the gender marker on my birth certificate changed.

10. I transitioned to a female identity at work and had breast augmentation surgery in 2012.

11. I was highly functioning and happy with my transition for a few years.

12. After being on cross-sex hormones and living as a female for twelve years, however, I began to see the irrationality of what I had done. I began to question what I had done and had an internal realization that what I was pretending to be was not real.

13. The internal incongruity grew by the day to the point that I began to become suicidal. I could no longer live what was essentially a lie any longer. I became severely depressed. The only thing that kept me alive was that my granddaughter was living with me.

14. In March 2021 I made the decision to detransition. I re-connected with my male biology, re-established my male identity, and re-established relationships with others as a male.

15. Detransitioning meant that I stopped taking hormones. I removed the breast augmentation and changed my gender marker and name back to male. I did what I could to change my appearance, cut my hair, stopped wearing make-up and women's clothes, but I could not undo the facial surgery or the genital surgery. I could not get back the lost organs, sensations, enjoyment, or functionality.

16. I have no regret detransitioning to my biological sex and wish I had done it sooner. I deeply regret having wasted years of my life, the damage to my body, the permanent loss to my body, the exorbitant cost of these treatments, and the damaged relationships. I think I would dead if I had not detransitioned. The depression was so severe, I think I would have taken my life.

17. VCCAP is necessary and essential because children and adolescents are incapable of making these irreversible decisions. In retrospect, I do not believe I

made a sound decision that I could live with the rest of my life, and I was 50 years old at the time. It is impossible for any adolescent to do so.

18. I am a living example that gender identity is not innate or immutable, like one's sex, race or ethnicity. I had been convinced that I was a "female" born in a male body. I had felt that way since childhood. Based on that consistent and persistent conviction, I fully transitioned in every possible way to live and appear as a woman. Now I realize that it was all a lie, a mental state of mind that was subject to change, and that it didn't solve the internal consternation and deeper emotional problems.

19. VCCAP will help spare my fellow Alabama citizens from similar loss and distress.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: April 28, 2022.

Ted H Halley

DOC. 69-38

DEFENDANT'S EXHIBIT 38

UNITED STATES DISTRICTCOURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity As Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official Capacity as District Attorney for Jefferson County.

Defendants

CIVIL ACTION # 2:22-cv-00184-LCB-SRW

Declaration of Kellie C.*
In Support of Defendants'
Opposition to Plaintiffs'
Motion for Preliminary Injunction

I, Kellie C.[1] declare as follows:

1. I am over the age of 18 years and am not a party to this action. I have actual knowledge of the following facts and if called upon to testify to them could and would do so competently. I am submitting this Declaration in support of Defendants' opposition to Plaintiffs' Motion for a Temporary Restraining Order and Preliminary Injunction.

2. Alabama's Vulnerable Child Compassion and Protection Act ("VCCAP") provides parents necessary protections against manipulation and coercion on the part of health care providers, ex-spouses and confused children to comply with demands for medical and surgical interventions aimed at "affirming" a child's professed discordant gender identity under threats of alienation or loss of a child to suicide.

3. Because there is no such parent and child-protective law in place in my home state, I have been subjected to alienation from my daughter, coercion, manipulation, and blatant disregard for my parental right to make sound medical and mental health decisions for my child. The VCCAP will prevent parents and children in Alabama from suffering similar harms. It will actually restore the rights of all parents, not just those who agree with demands for "gender-affirming" medical

[1] Declarant is submitting this Declaration using a pseudonym to protect the privacy of her children and other family members.

interventions, to make medical and mental health care decisions for their children in accordance with their natural, healthy development.

4. My daughter, D., became involved in fan fiction at age 11, when she began puberty. By age 13, D. had diagnosed herself with gender dysphoria and began identifying as a 17-year-old male character from Harry Potter. Every year since then, D. has celebrated the birthday of the fictional identity, and is now, at age 17, identifying as a 23-year-old male.

5. D. underwent a psychiatric evaluation which found that she is delusional and incapable of taking care of herself, on the autism spectrum, has OCD and possibly ADHD, but is not psychotic. The evaluation team admits that D. is identifying as a 23-year-old man and is proclaiming that she has Dissociative Identity ("multiple personality") Disorder, but that they do not believe she has DID. Instead, the psychiatric team believes that D. has researched DID and is using it as a maladaptive coping tool for working through the childhood trauma of being sexually assaulted at age 13 or 14, something I just recently learned about.

6. D. is in a residential treatment center. The treatment team has not engaged in therapy with D. to address her underlying issues. Instead, they have embraced her delusion that she is a 23-year-old fictional male character as a transgender identity. The therapists reiterate that they want D. to feel "safe" so they will not address underlying issues, including the sexual assault, unless D. wants to.

7. D. has asked for puberty blockers and testosterone. Despite her myriad co-morbidities and unaddressed sexual trauma, the treatment team say that D. is ready for "gender-affirming" medical interventions. The therapists and D.'s father have told her the only thing standing in the way of her getting those interventions is my refusal to consent.

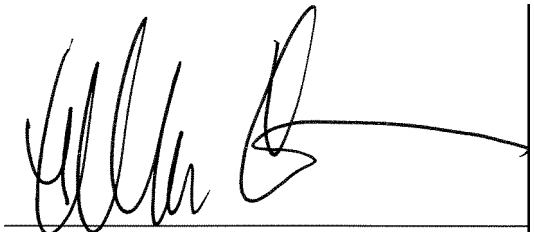
8. The therapists and psychologists have told me that I should do my own research, but if I do not agree with them I "will have a dead daughter instead of a 'live son.'" I am constantly told that I need to "get on board" with what D wants.

9. The VCCAP Act is an important step in preventing harm to vulnerable children. Making these medical interventions unavailable to children will prevent the harms of these interventions on the children and the harms inflicted on parents fighting to protect their mentally disturbed children from irresponsible health care providers.

10. The VCCAP Act prevents coercive manipulation and potential harm against Alabama's vulnerable children and should be upheld for the protection of children and their families.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: April 28, 2022.



Kellie C. (pseudonym)

DOC. 69-39

DEFENDANT'S EXHIBIT 39

UNITED STATES DISTRICTCOURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D; and RACHEL KOE, M.D.

Plaintiffs,

v.

KAY IVEY, in her official capacity As Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON in his official capacity as District Attorney for the 12th Judicial Circuit; and DANNY CARR, in his official Capacity as District Attorney for Jefferson County.

Defendants

CIVIL ACTION # 2:22-cv-00184-LCB-SRW

Declaration of Gary Warner In Support of Defendants' Opposition to Plaintiffs' Motion for Preliminary Injunction

I, Gary Warner, declare as follows:

1. I am over the age of 18 years and am not a party to this action. I have actual knowledge of the following facts and if called upon to testify to them could and would do so competently. I am a resident of Alabama and the father of a daughter who committed suicide after being placed on some of the medical interventions that are the subject of Alabama's Vulnerable Child Compassion and Protection Act ("VCCAP"). I am submitting this Declaration in support of Defendants' opposition to Plaintiffs' Motion for a Temporary Restraining Order and Preliminary Injunction.

2. If VCCAP had been in effect in 2013 then my 18-year-old daughter could not have been offered testosterone as a means of "affirming" what she had been led to believe was her "true" identity as a male after suffering horrific sexual abuse. She would have been provided with other options for dealing with her psychological and emotional pain and perhaps gotten the therapy she needed instead of spiraling into despair and suicide.

3. My daughter, K., struggled with health issues, including kidney stones for much of her life. Beginning at age 11 she was the subject of bullying and cyber-bullying at school, much of it of a sexual nature. This increased her anxiety and made her fear for her safety. One of the incidents during high school included threats of dragging her into the boys' bathroom and forcing her to perform sex acts.

4. K. was under the care of professional counselors and psychiatrists for most of her teen years. She was diagnosed with Borderline Personality Disorder and at one point after the bullying incidents was diagnosed with PTSD.

5. Shortly after turning 18, K. was drugged and raped by the older brother of one of her friends while attending a lake party. Because the rapist was a prominent citizen and K was viewed as a troubled teen, there was no criminal prosecution.

6. After the rape, K. began distancing herself from former romantic partners. Her friends insisted that the reason she no longer wanted to be romantically involved was because she really was a man trapped in a woman's body. K. began wearing male clothing and adopted a male name.

7. One of her friends announced that she was transgender at about the same time.

8. K.'s friends who insisted K. was really a man trapped in a woman's body recommended that she see Keith Abrams, a clinical psychologist in Birmingham and avid promoter of gender transition treatments for trans-identifying youth. Abrams recommended that K begin taking testosterone to "help her transition."

9. We attended a session with Abrams. K. wanted him to explain to us why it was advisable for K to move forward with testosterone. He did not provide us with information that would have allowed us or K. to understand the irreversible

nature of these treatments or their long-term effects. He simply told us we needed to "support" our daughter's decision. We did not give informed consent.

10. There was no attempt to deal with the underlying trauma and co-morbidities K was experiencing, but just a push to begin testosterone.

11. K became fixated on the idea that she was born the wrong gender and rejected any counsel or suggestion that did not align with that belief.

12. She did begin testosterone and it exacerbated her anxiety and also transformed her into an angry, threatening person. She threatened to kill her mother to the point that her mother slept with the door locked from fear. Prior to this K. had never been a violent or angry person.

13. Testosterone was not the solution K had been promised. It did nothing to help her emotional pain, which escalated to the point that she took her own life at age 18.

14. The total ban on medical interventions on children age 19 and under enacted under VCCAP is necessary because, like K., I believe most of the young people dealing with gender dysphoria have underlying trauma and/or mental health problems that are not being addressed so long as the medical transitions interventions are available to young people. The availability of these treatments is causing physicians to ignore these underlying causes and empowering young people to deny biological reality to their harm.

15. VCCAP is also especially necessary because the medical community not giving informed consent – they are cheerleading a lifestyle. Rather than giving young people the professional help they need, doctors are acting as activists pushing parents to consent by claiming this is a medically advisable choice, thereby driving the children toward an irreversible life change.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: April 29, 2022.

Gary Warner (Apr 29, 2022 22:11 MDT)

Gary Warner

DOC. 69-40

DEFENDANT'S EXHIBIT 40

**IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION**

REV. PAUL A. EKNES-TUCKER, *et al.*,	)	
Plaintiffs,	)	
v.	)	Civil Action No. 2:22-cv-184-LCB
KAY IVEY, in her official capacity as Governor of Alabama, *et al.*,	)	
Defendants.	)	

DECLARATION OF EDMUND G. LACOUR JR. IN SUPPORT OF DEFENDANTS' RESPONSE IN OPPOSITION TO PLAINTIFFS' MOTION FOR PRELIMINARY INJUNCTION (DOC. 7)

I, Edmund G. LaCour Jr., hereby declare as follows:

1. I am over 18 years of age and am competent to make this declaration.

2. I am the Solicitor General of the State of Alabama and one of the attorneys for Defendants in the above-captioned matter.

3. Attached to this declaration is a copy of an email exchange from April 15, 2022, between myself and Melody H. Eagan, lead counsel for Plaintiffs in the above-captioned matter.

4. The exhibit is a true and correct copy of what it purports to be.

5. I declare under the penalty of perjury that the foregoing is true and correct.

Executed on May 2, 2022

/s/ Edmund G. LaCour Jr.
Counsel for Defendants

LaCour, Edmund

From: LaCour, Edmund
Sent: Friday, April 15, 2022 4:34 PM
To: Melody H. Eagan
Cc: Jeffrey P. Doss; Amie A. Vague; Bowdre, Barrett; Davis, Jim
Subject: RE: Ladinsky v. Ivey, et al. - addendum to our conversation

Melody,

Thank you for your call earlier and the follow-up email. We will note that both sets of plaintiffs consent to consolidation. Have a great weekend.

Best,
Eddie

Edmund LaCour
Solicitor General
Office of Alabama Attorney General Steve Marshall
Direct: 334-353-2196
Fax: 334-353-8400

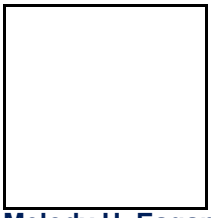
From: Melody H. Eagan <meagan@lightfootlaw.com>
Sent: Friday, April 15, 2022 4:20 PM
To: LaCour, Edmund <Edmund.LaCour@AlabamaAG.gov>
Cc: Jeffrey P. Doss <jdoss@lightfootlaw.com>; Amie A. Vague <avague@lightfootlaw.com>
Subject: Ladinsky v. Ivey, et al. - addendum to our conversation

Eddie,

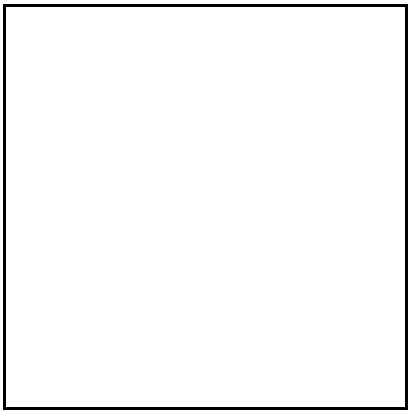
One other thing I should have mentioned. I spoke with counsel for the Walker plaintiffs, and they consent to consolidation. So you probably want to phrase your motion as an unopposed motion, and also put in there that counsel for the Walker plaintiffs also consent to consolidation.

Call me if questions.

Thanks,
Melody

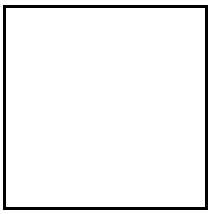


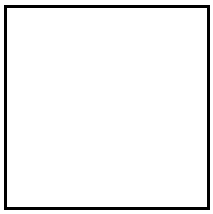
Melody H. Eagan
Attorney



205-581-0700 main
205-581-0777 direct
205-581-0799 fax
meagan@lightfootlaw.com

The Clark Building
400 20th Street North
Birmingham, AL 35203





Confidentiality Notice

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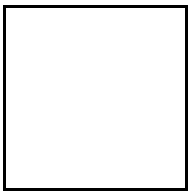

DOC. 74

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER, *et al.*,	)	
Plaintiffs,	)	
v.	)	Civil Action No. 2:22-cv-184-LCB
KAY IVEY, in her official capacity as Governor of Alabama, *et al.*,	)	
Defendants.	)	

DEFENDANTS' RESPONSE IN OPPOSITION TO PLAINTIFFS' MOTION FOR PRELIMINARY INJUNCTION (DOC. 7)

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INTRODUCTION

The Alabama Vulnerable Child Compassion and Protection Act is aptly named. *See* Ex. 1. Minors with gender dysphoria and other forms of gender-related psychological distress are suffering greatly. They have higher rates of depression and suicide than other minors do. They are likely to struggle with an array of other psychological ailments. They represent, at disproportionately high rates, some of the most vulnerable groups of young people: those with mental developmental disabilities, autism spectrum disorder (at a rate more than 7x the general population), ADHD, and prior histories of psychiatric illness or trauma. They deserve compassion, protection, and help.

What they too often receive is rushed medical experimentation. As the number of gender clinics have exploded across America, traditional safeguards have been tossed aside in favor of unproven medical interventions with long-term, irreversible consequences and little, if any, proven benefit. Minors are told that they have been born in the wrong body and that the only solution is to physically transition to appear as the other sex. They are told that this pathway of "gender affirmation"—consisting of social transition, the administration of puberty blockers and cross-sex hormones, and surgical interventions—will offer them healing. And though these treatments have never been approved by the Food and Drug Administration for treating gender dysphoria, they are told that these treatments are based on solid scientific evidence.

Parents often "consent" to the treatments after being threatened with a stark alternative: Would they "rather have a dead child or a trans one?"[1]

The shock is that the scientific literature supports none of this. In a field in which so much is unsettled and still unstudied (remarkably so), that much is clear. What evidence does exist, though, shows that most cases—somewhere between 61% and 94%—of childhood gender dysphoria resolve naturally. Because there is no medical diagnosis that can tell whose dysphoria will persist into adulthood and whose won't, some form of "watchful waiting" is traditionally the preferred model of care. It allows clinicians to support children as they go through puberty, offer counseling as they come to terms with their sexual identities (most gender dysphoric youth will identify as gay or lesbian as adults), and provide treatment for other psychological comorbidities that are usually present. Once they are adults, if the dysphoria persists, they can make an informed decision about whether physical transition could be worth pursuing.

If, instead, minors are started on puberty blockers in early adolescence, the evidence suggests that the intervention will set them on a lifelong clinical pathway of cross-sex hormones and reassignment surgeries. These are major medical

[1] Laura Edwards-Leeper & Erica Anderson, *The Mental Health Establishment is Failing Trans Kids*, WASHINGTON POST (Nov. 24, 2021), https://www.washingtonpost.com/outlook/2021/11/24/trans-kids-therapy-psychologist/; *see also* Kenneth J. Zucker, *Adolescents with Gender Dysphoria: Reflections on Some Contemporary Clinical and Research Issues*, ARCHIVES OF SEXUAL BEHAVIOR 48:1984 (2019), *available at* https://doi.org/10.1007/s10508-019-01518-8 (collecting examples).

procedures that carry with them substantial risks of long-lasting harm. To say nothing of the problems caused by double mastectomies and irreversible "bottom" surgeries, minors taking puberty blockers and cross-sex hormones risk permanent sterility, loss of sexual function, increased risk of heart attack and stroke, bone-density problems, risk of altered brain development, and psycho-social harms from delayed puberty.

And for what? What are the outcomes for the children who undergo this course of treatment? Or for the rising tide of adolescent girls who appear to be presenting with a new form of socially influenced gender distress? Incredibly, no one really knows. The evidence is distressingly thin. But contrary to Plaintiffs' claims, the best evidence available does not show that the interventions improve mental health or reduce suicide rates in the long term. Some research even suggests that transition may be associated with an *increased* risk of suicide.

Other countries are taking note. In just the past few years, healthcare authorities or hospital systems in the United Kingdom, Finland, Sweden, France, Australia, and New Zealand have all conducted literature reviews regarding affirmation treatment. The result? Every one of them urged increased caution. Some put the brakes on completely. They recognize the low quality of the studies, the important questions left unanswered by existing research, the significant long-term risks associated with affirmation interventions, the unexplained explosion in gender discordance among

young people, the inability to medically diagnose the minority of patients whose gender dysphoria will persist, the dramatic (though largely unstudied) increase in the number of patients who regret their transitions, and the abject unfairness of asking a 12-year-old girl to "consent" to an experimental course of treatment that will radically change her body, leave her permanently sterile, and in all likelihood fail to bring her long-term psychological relief.

Plaintiffs mention none of this. Proclaiming a false consensus and a degree of medical certainty that does not exist, they ask this Court to override the State's policymakers and impose on Alabama's children a medical regime that is experimental at best and comes with significant risks of lifelong harms. But nothing in the Constitution or federal law prohibits Alabama from protecting its most vulnerable youth in the face of scientific uncertainty. All medical regulation is based on a balance of risk and benefit, and, after extensive study, the Alabama Legislature reasonably determined that the evidence that exists right now does not prove that the benefits of puberty blockers, cross-sex hormones, and surgical interventions to treat gender dysphoric children outweigh the risks. Federal courts have neither the authority nor the competence to second-guess that determination. With the stakes so high, the harms so great, and the known benefits so paltry, the Alabama Legislature did not have to embrace an experimental path in lieu of the one that has served the medical profession so well for so long: First, do no harm.

Plaintiffs' claims thus fail on the merits. The Equal Protection Clause does not prohibit a State from banning unproven and potentially dangerous medical interventions on children—particularly when, as here, the State bans them for *everyone*, boys and girls alike, and regardless of transgender status. Accounting for the reality that certain treatments depend on sex does not present an Equal Protection problem. For example, it is not unlawful discrimination to offer testicular exams only to boys or pap smears only to girls. Similarly, implanting a fertilized egg in a woman is a treatment for infertility; implanting it in a man is something quite different. Likewise, it is not unlawful discrimination to provide natural amounts of testosterone to a boy with a testosterone deficiency while declining to provide unnatural amounts of testosterone to a girl seeking to transition. Providing a girl with a boy's level of testosterone would be a different treatment altogether. Such commonsense, medically necessary distinctions are not barred by the Constitution.

Nor does the State's requirement that children wait until they become adults to permanently change their bodies discriminate on the basis of transgender status (which is not a protected class in any event). Among other things, the fact that most gender dysphoric youth will *not* identify as transgender as adults proves as much.

As for Plaintiffs' lead argument, the Due Process Clause simply does not forbid States from regulating medical treatments. Courts are in one accord that there is no personal substantive due process right to obtain experimental medical treatments.

It necessarily follows that parents do not have a right to obtain experimental medical procedures for their children. Plaintiffs do not even attempt to show that any such carefully defined right is deeply rooted in our history and traditions.

Plaintiffs' vagueness and First Amendment challenges are likewise meritless. Plaintiffs argue that the word "cause" is unconstitutionally vague, but if that were true, much of the criminal code would need to be enjoined. And though they present myriad hypotheticals that could present close questions in the abstract, what is not a close question is whether the conduct Plaintiffs want to engage in is forbidden. Providing puberty blockers or cross-sex hormones to a minor for the purpose of gender transition is clearly outlawed. Plaintiffs' vagueness challenge thus fails. So does their First Amendment claim: speech that "causes" a crime—such as writing a prescription for an illegal use of a drug—has no First Amendment protection.

Plaintiffs also lose on the equities because they intentionally delayed bringing this lawsuit. Governor Ivey signed the Act into law on April 8, 2022, and it takes effect on May 8. Yet while Plaintiffs claim they need emergency injunctive relief from this Court, they waited until April 21 to seek emergency relief. Doc. 7. Why? It has something to do with a previous lawsuit brought by Plaintiffs' attorneys: *Ladinsky v. Ivey*, No. 5:22-cv-447-LCB (N.D. Ala. 2022), which they filed on April 8. That case and another nearly identical one, *Walker v. Marshall*, No. 5:22-cv-480-LCB (N.D. Ala. 2022), were assigned to this Court on April 15. As soon as that

assignment happened, both sets of Plaintiffs voluntarily dismissed their claims within nine minutes of each other.[2] Lead counsel for the *Ladinsky* Plaintiffs—who is lead counsel for Plaintiffs here—quickly told the media that they "plan[ned] to refile imminently."[3] So they did. With a set of new plaintiffs (and the old lead plaintiff moved to "expert"), the 17 *Ladinsky* lawyers re-filed suit a few days later bringing the same claims (mostly) and using the same language (mostly) from their original complaint. As the Court pointed out, "Plaintiffs' course of conduct could give the appearance of judge shopping," "a practice that has the propensity to create the appearance of impropriety in the judicial system."[4] Plaintiffs' inequitable, manipulative conduct disqualifies them from equitable relief.

Just as pressing, Plaintiffs' misconduct also shows that they are not truly facing the emergency they proclaim. If they were—if time really were of the essence—their lawyers would not have dismissed a prior suit to play procedural games.

Finally, the People have the strongest interest in an Act adopted by their representatives to protect the most vulnerable among us. If the Court enjoins this Act, Alabama children face irreversible damage from unproven, sterilizing, and

[2] *See* Notice of Dismissal, *Walker v. Marshall*, No. 5:22-cv-480-LCB (N.D. Ala. Apr. 15, 2022), Doc. 23; Notice of Dismissal, *Ladinsky v. Ivey*, No. 5:22-cv-447-LCB (N.D. Ala. Apr. 15, 2022), Doc. 15.
[3] Paul Gattis, *Lawsuits Seeking to Overturn New Alabama Transgender Law Dropped, Could be Refiled*, AL.COM (Apr. 16, 2022, 5:43 p.m.), https://www.al.com/news/2022/04/lawsuits-seeking-to-overturn-new-alabama-transgender-law-dropped-could-be-refiled.html; *see* Order, *Walker*, No. 5:22-cv-480-LCB (N.D. Ala. Apr. 18, 2022), Doc. 24 at 3.
[4] Order, *Walker*, No. 5:22-cv-480-LCB (N.D. Ala. Apr. 18, 2022), Doc. 24 at 3.

permanently scarring medical interventions pushed by ideological interest groups. The Court should deny Plaintiffs' belated request for preliminary relief.

BACKGROUND

To properly evaluate Plaintiffs' claims, it is important to understand the history, terminology, and state of the science for treating minors suffering from gender dysphoria and other forms of gender-related distress. An overview follows, but more extensive treatments are found in the submitted expert declarations by Dr. James Cantor, Ph.D., a clinical psychologist and Director of the Toronto Sexuality Centre in Canada, Ex. 2; Dr. Michael K. Laidlaw, M.D., an endocrinologist in private practice in Rocklin, California, Ex. 3; Dr. Quentin L. Van Meter, M.D., a pediatric endocrinologist in private practice in Atlanta, Georgia, and Associate Professor of Pediatrics at Emory University School of Medicine and Morehouse College of Medicine, Ex. 4; Dr. Paul W. Hruz, M.D., Ph.D., Associate Professor of Pediatrics in the Division of Pediatric Endocrinology and Diabetes at Washington University School of Medicine, Ex. 5; Dr. Patrick Hunter, M.D., a pediatrician, bioethicist, and former chair of the pediatric department at Scotland Memorial Hospital, Ex. 6; and Dr. Dianna Kenny, Ph.D., a psychotherapist and former Professor of Psychology at the University of Sydney, Australia, Ex. 7. *See* Docs. 69-1 through 69-7.

Though these experts tried their best to respond to the claims made by Plaintiffs and their experts (particularly given the time constraints—they've had no time

at all to review the federal government's proposed expert report), it is worth noting that they had limited material to work with. As Dr. Cantor noted, Plaintiffs' preliminary injunction "motion and all three experts asserted very many very bold claims, but vanishingly little citation of any objective science at all. Of the many hundred relevant, peer-reviewed research articles on this topic, Dr. Hawkins cited three, Dr. Ladinsky cited none at all, and Dr. Rosenthal cited eight, four of which were from the same research team, also cited by Dr. Hawkins.… [T]hat small set of articles represents a highly cherry-picked misrepresentation of the relevant body of science, failing to reflect the consensus of the research literature." Cantor Decl. ¶ 10.

Also included are declarations from parents of gender dysphoric youth and from individuals who once suffered from gender dysphoria, received the transitioning treatments at issue, and later determined that they had not been mature enough to give informed consent to these drastic medical interventions. These stories are important because they show that a rising number of young people are actively harmed by the experimental treatments Plaintiffs say are constitutionally required. *See* Ex. 26, Decl. of Corinna Cohn; Ex. 27, Decl. of Sydney Wright; Ex. 28, Decl. of Carol Frietas; Ex. 29, Decl. of Barbara F.; Ex. 30, Declaration of John Doe; Ex. 31, Decl. of John Roe; Ex. 32, Decl. of Kristine W.; Ex. 33, Decl. of Yaacov Sheinfeld; Ex. 34, Decl. of Martha S.; Ex. 35, Decl. of KathyGrace Duncan; Ex. 36, Decl

of Jeanne Crowley; Ex. 37, Decl. of Ted H. Halley; Ex. 38, Decl. of Kellie C.; Ex. 39, Decl. Gary Warner. *See* Docs. 69-26 through 69-39.

Finally, a limited number of important primary documents are submitted. These include important studies that are repeatedly referenced in the literature and the expert reports, as well as statements and comprehensive literature reviews from healthcare authorities across the globe. These statements show that Plaintiffs' claim of widespread consensus as to the efficacy, safety, and necessity of using puberty blockers, cross-sex hormones, and surgical interventions to treat gender dysphoria in children is simply not true.[5]

[5] *See* Ex. 8, Stephen B. Levine, E. Abbruzzese & Julia M. Mason, *Reconsidering Informed Consent for Trans-Identified Children, Adolescents, and Young Adults*, J. OF SEX & MARITAL THERAPY (Mar. 17, 2022) [hereafter "Levine et al., *Reconsidering Informed Consent*"]; Ex. 9, *Evidence Review: Gonadotropin Releasing Hormone Analogues for Children and Adolescents with Gender Dysphoria*, Nat'l Inst. for Health & Care Excellence (NICE) (released Mar. 11, 2021), *available at* https://arms.nice.org.uk/resources/hub/1070905/attachment [hereafter "NICE Puberty Blocker Evidence Review"]; Ex. 10, *Evidence Review: Gender-Affirming Hormones for Children and Adolescents with Gender Dysphoria*, Nat'l Inst. for Health & Care Excellence (NICE) (released Mar. 11, 2021), *available at* https://arms.nice.org.uk/resources/hub/1070871/attachment [hereafter "NICE Cross-Sex Hormone Evidence Review"]; Ex. 11, Sweden National Board of Health and Welfare Policy Statement, Socialstyrelsen, *Care of Children and Adolescents with Gender Dysphoria: Summary* (2022), *available at* https://www.socialstyrelsen.se/globalassets/sharepoint-dokument/artikelkatalog/kunskapsstod/2022-3-7799.pdf [hereafter "Sweden Policy Statement"]; Ex. 12, Finland's Council for Choices in Healthcare Policy Statement, Palveluvalikoima, *Recommendation of the Council for Choices in Health Care in Finland (PALKO / COHERE Finland)* unofficial translation by Society for Evidence Based Medicine available (in English) at https://segm.org/sites/default/files/Finnish_Guidelines_2020_Minors_Unofficial%20Translation.pdf [hereafter "Finland Policy Statement"]; Ex. 13, Académie Nationale de Médecine, *Medicine and Gender Transidentity in Children and Adolescents* (Feb. 25, 2022), *available at* https://www.academie-medecine.fr/wp-content/uploads/2022/03/22.2.25-Communique-PCRA-19-Gender-identity-ENG.pdf [hereafter "France Policy Statement"]; Ex. 14, The Royal Australian & New Zealand College of Psychiatrists, *Recognising and Addressing the Mental Health Needs of People Experiencing Gender Dysphoria / Gender Incongruence*, Position Statement 103 (Aug.

A. Sex, Gender, and Gender Discordance

While Plaintiffs prefer the term "sex assigned at birth," the more precise term is simply "sex" or "biological sex." Laidlaw Decl. at 6-7; Hruz Decl. ¶ 28. A child's sex is determined at conception, depending on whether a sperm's X or Y chromosome fertilizes the egg. Van Meter Decl. at 2-3. A person's sex is encoded in every cell of her body. According to the National Institutes of Health, "[s]ex is a biological

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2021), *available at* https://perma.cc/LR94-73ZU [hereafter "Royal Australian & New Zealand College of Psychiatrists Statement"]; Ex. 15, *Bell v. Tavistock & Portman Nat'l Health Serv. Found. Tr.* [2020] EWHC (Admin) 3274; Ex. 16, Centers for Medicare & Medicaid Services, Tamara Syrek Jensen et al., *Decision Memo for Gender Dysphoria and Gender Reassignment Surgery* (CAG-00446N) (Aug. 30, 2016), *available at* https://perma.cc/9CQN-938N; Ex. 17, Am. Psychiatric Ass'n, DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS (5th ed. 2013) (excerpts) [hereafter "DSM-5"]; Ex. 18, World Professional Ass'n for Transgender Health (WPATH), *Standards of Care for the Health of Transsexual, Transgender, and Gender-Conforming People* (7th Version) (2012) [hereafter "WPATH Standards"]; Ex. 19, Wylie C. Hembree et al., *Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guidelines*, 102 J. CLINICAL ENDOCRINOLOGY & METABOLISM 3869 (Nov. 2017) [hereafter "Endocrine Society Guidelines"]; Ex. 20, Lisa Littman, *Parent Reports of Adolescents & Young Adults Perceived to Show Signs of a Rapid Onset of Gender Dysphoria*, PLOS ONE 13(8):e0202330 [hereafter "Littman, *Rapid-Onset Gender Dysphoria*"]; Ex. 21, Lisa Littman, *Individuals Treated for Gender Dysphoria with Medical and/or Surgical Transition Who Subsequently Detransitioned: A Survey of 100 Detransitioners*, 50 ARCHIVES OF SEXUAL BEHAVIOR No. 50, 3353 (Oct. 2021) [hereafter "Littman Survey"]; Ex. 22, Elie Vandenbussche, *Detransition-Related Needs and Support: A Cross-Sectional Online Survey*, JOURNAL OF HOMOSEXUALITY (Apr. 30, 2021), *available at* https://doi.org/10.1080/00918369.2021.1919479; Ex. 23, Annelou de Vries et al., *Young Adult Psychological Outcome After Puberty Suppression and Gender Reassignment*, 130 PEDIATRICS, No. 4, 696-704 (Oct. 2014); Ex. 24, Jason Rafferty, *Policy Statement, Am. Academy of Pediatrics, Ensuring Comprehensive Care & Support for Transgender & Gender-Diverse Children & Adolescents*, 142 Pediatrics no. 4 (Oct. 2018), *available at* https://perma.cc/EE6U-PN66 [hereafter "AAP Statement"]; Ex. 25, Am. Psych. Ass'n, *Guidelines for Psychological Practice With Transgender and Gender Nonconforming People*, 70 Am. Psychologist 832 (Dec. 2015), *available at* https://www.apa.org/practice/guidelines/transgender.pdf (emphasis added) [hereafter "APA Guidelines"]. *See* Docs. 69-8 through 69-25.

classification, encoded in our DNA. Males have XY chromosomes, and females have XX chromosomes."[6]

Sex and gender are distinct. Sex is biological. Van Meter Decl. at 2-4; Hruz Decl. ¶ 21. Gender is psychological and sociological—"the psychological and cultural characteristics associated with biological sex." Van Meter Decl. at 5. Gender identity, then, "refer[s] to an individual's mental and emotional sense of being male or female." *Id.* According to a recent paper published by the Endocrine Society, while "[s]ex is an essential part of vertebrate biology," "gender is a human phenomenon; sex often influences gender, *but gender cannot influence sex*."[7] Thus, "*sex differences* are those caused by biological factors, whereas *gender differences* reflect a complex interplay of psychological, environmental, cultural, and biological factors."[8] Gender identity and biological sex are both distinct from sexual identity or sexual orientation, which "refer[] to the group of persons to whom an individual is sexually attracted."[9]

How a child's gender identity is formed is not fully understood. Most children—traditionally more than 99%—identify with their biological sex. Van Meter

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[6] Nat'l Inst. of Health, Office of Research on Women's Health, *How Sex and Gender Influence Health and Disease*, *available at* https://perma.cc/9EP5-MXK8.
[7] Aditi Bhargava et al., *Considering Sex as a Biological Variable in Basic and Clinical Studies: An Endocrine Society Scientific Statement*, ENDOCRINE REVIEWS 10 (2021) (emphasis added), *available at* doi:10.1210/endrev/bnaa034.
[8] *Id.* at 8.
[9] *Id.* at 9; *see also* Hruz Decl. ¶¶ 23-24.

Decl. at 5. A very small minority do not; their gender is said to be "incongruent" with their sex. *Id.* It is likely that biology, psychosocial, environmental, and various cultural factors all play a role in this formation. "[W]hile associations between gender identity, neuroanatomic, genetic, and hormone levels exist, a clear causative biological underpinning of gender identity remains to be demonstrated."[10] It is clear, however, that "gender is strongly influenced by environmental and cultural forces."[11] As Plaintiffs' expert Dr. Rosenthal has put it, gender identity "likely reflects a complex interplay of biological, environmental, and cultural factors." Hunter Decl. ¶ 33 (quoting Stephen Rosenthal, *Approach to the Patient: Transgender Youth: Endocrine Considerations*, 99 J. OF CLINICAL ENDOCRINOLOGY & METABOLISM No. 12, 4379-89 (2014)); *see also* Van Meter Decl. at 6-8 (discussing brain matter studies); Hruz Decl. ¶ 46 (discussing twin studies).

Accounting for social and cultural factors has only grown in importance in recent years. "While the incidence [of gender identity variations] in youth had not been officially estimated, in adults it was 2-14 per 100,000." Levine et al., *Reconsidering Informed Consent* at 2. "However, around 2006, the incidence among youth began to rise, with a dramatic increase observed in 2015." *Id.* (citations omitted). "Currently, 2-9% of U.S. high school students now identify as transgender, while in

[10] Bhargava, *supra*, at 8.
[11] *Id.*

colleges, 3% of males and 5% of females identify as gender-diverse." *Id.* (citations omitted); *see* Hruz Decl. ¶ 72. "Along with this increase in transgender patients and identifiers[] has come a radical and recent transformation of the patient population from early onset males to rapid onset adolescent girls." Hruz Decl. ¶ 72. Currently, "the majority of new patients with sex-gender discordance are not males with a long, stable history of gender dysphoria since early childhood—as they were for decades—but instead adolescent females with no documented long-term history of gender dysphoria." *Id.* Some researchers have labeled the phenomenon "Rapid Onset Gender Dysphoria." *See generally* Littman, *Rapid-Onset Gender Dysphoria*. Concerningly, the majority of these cases "appear to occur within clusters of peers and in association with increased social media use and especially among people with autism or other neurodevelopmental or mental health issues." Cantor Decl. ¶ 71.

There are a number of ways to speak about individuals experiencing gender incongruence. Most broadly is "gender incongruent," "gender discordant," or "gender nonconformant," all of which broadly "refer[] to the extent to which a person's gender identity, role, or expression differs from cultural norms prescribed for people of a particular sex." WPATH Standards at 5. "Transgender" has a similarly broad meaning. The World Professional Association for Transgender Health (WPATH)—the organization Plaintiffs rely on the most—uses "transgender" to "describe a diverse group of individuals who cross or transcend culturally defined categories of

gender" and have gender identities that "differ[] to varying degrees from the sex they were assigned at birth." *Id.* at 97. The Endocrine Society's definition is similarly far-reaching: "transgender" is "an umbrella term for people whose gender identity and/or gender expression differs from what is typically associated with their sex designated at birth." Endocrine Society Guidelines at 3875.

As the American Academy of Pediatrics (AAP) points out, "transgender" is "not [a] diagnos[i]s," but a "personal" and "dynamic way[] of describing one's own gender experience." AAP Statement at 3. According to the AAP, "gender identity can be fluid, shifting in different contexts." *Id.* at 2 The American Psychological Association (APA) even reports that some people "experience their gender identity *as* fluid." APA Guidelines at 836. There are also those who seek to "redefine gender" or who "decline to define themselves as gendered altogether"—who "think of themselves as both man and woman (bigender, pangender, androgyne); neither man nor woman (genderless, gender neutral, neutrois, agender); moving between genders (genderfluid); or embodying a third gender."[12] These individuals consider themselves to be "non-binary," a category that now may encompass most transgender-identifying youth, Hunter Decl. ¶ 79.

[12] APA Guidelines at 862 (noting that a "recent study reported that the majority of transgender-identifying youth (63%) now have a non-binary identity").

B. Gender Dysphoria

Unlike "transgender," "gender dysphoria" is a medical diagnosis.[13] According to the current edition of the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5), individuals with gender dysphoria (1) "have a marked incongruence" between their biological sex "and their experienced/expressed gender," and (2) experience clinical levels of "distress about this incongruence." DSM-5 at 452. The DSM-5 separates gender dysphoria into "early-onset"—childhood—and "late onset"—adolescence or adulthood. *Id.* at 452-53.

1. Childhood-Onset Gender Dysphoria

"The large majority of childhood onset cases of gender dysphoria occur in biological males, with clinics reporting 2-6 biological male children to each female." Cantor Decl. ¶ 34. Many, if not most, gender dysphoric children also suffer from "significant comorbid mental health disorders, have neurocognitive difficulties such as ADHD or autism[,] or have a history of trauma." Levine et al., *Reconsidering Informed Consent* at 3. For instance, "[a] formal analysis of children (ages 4–11) undergoing assessment at the Dutch child gender clinic showed 52% fulfilled criteria for a DSM axis-I disorder." Cantor Decl. ¶ 69. Another study of Canadian and Dutch

[13] Older terms for the same or very similar diagnosis include "gender identity disorder of childhood" (for children) and "transsexualism" (for adolescents and adults). *See* Kenneth J. Zucker, *The DSM-5 Diagnostic Criteria for Gender Dysphoria*, in MANAGEMENT OF GENDER DYSPHORIA: A MULTIDISCIPLINARY APPROACH 33 (eds. C. Trombetta et al. 2015), *available at* https://bit.ly/3LJvaaM.

clinics showed that, "among 6–11 year-olds, 61.7% of the Canadian and 62.1% of the Dutch sample were in the clinical range" rather than the "healthy range" when assessed on the Child Behavior Check List. *Id.* The rate of ADHD among children with gender dysphoria ranges between 8.3% and 11%. *Id.* ¶ 70. And "data from children (ages 6-18) with Autism Spectrum Disorders (ASDs) show they are more than seven times more likely to have parent-reported 'gender variance.'" *Id.*

If not given medical interventions to transition—and that is an important "if"—most children with gender dysphoria will grow up to identify as gay or lesbian and will not suffer from gender dysphoria as adults. Hunter Decl. ¶ 39; DSM-5 at 455. This fact of desistance—that "[g]ender dysphoria during childhood does not inevitably continue into adulthood," as the WPATH Standards put it (at 11)—is well established in the medical literature, and all of the "standards" Plaintiffs rely on recognize this fact. The DSM-5 reports that rates of persistence (i.e., non-desistance) for biological males range "from 2.2% to 30%" and from "12% to 50%" for biological females. DSM-5 at 455. This means that between 97.8% and 70% of boys and between 88% and 50% of girls suffering from gender dysphoria will have their dysphoria resolve by the time they reach adulthood.

WPATH reports similar numbers: "[I]n follow-up studies of prepubertal children (mainly boys) who were referred to clinics for assessment of gender dysphoria, the dysphoria persisted into adulthood for only 6–23% of children." WPATH

Standards at 11. "New studies, also including girls, showed a 12–27% persistence rate of gender dysphoria into adulthood." *Id.*

The Endocrine Society agrees: "In most children diagnosed with GD/gender incongruence, it did not persist into adolescence. The percentages differed among studies, probably dependent on which version of the DSM clinicians used, the patient's age, the recruitment criteria, and perhaps cultural factors. However, the large majority (about 85%) of prepubertal children with a childhood diagnosis did not remain GD/gender incongruent in adolescence." Endocrine Society Guidelines at 3879 (citations omitted).

Thus, in contrast to Plaintiffs' extraordinary claim that "the likelihood of [gender dysphoric youth] 'outgrowing' their transgender identity in adolescence or adulthood is virtually nil," Br., Doc. 8 at 37, a comprehensive survey of the literature shows that, "despite coming from a variety of countries, conducted by a variety of labs, using a variety of methods, all spanning four decades, every study without exception has come to the identical conclusion: Among prepubescent children who feel gender dysphoric, the majority cease to want to be the other gender over the course of puberty—ranging from 61–88% desistance across the large, prospective studies." Cantor Decl. ¶ 36.

The corollary consideration to high rates of desistance is whether a clinician can accurately predict whose gender dysphoria will persist into adulthood and whose

will not. The answer is that "[t]here is currently no way to predict who will desist and who will remain dysphoric." Laidlaw Decl. at 6 (citation omitted); *see* Hunter Decl. ¶ 66 ("[N]o clinician can reliably predict which young person will desist from their transgender identification vs. who will persist."); Cantor Decl. ¶ 41 (The "research has not yet identified any reliable procedure for discerning which children who present with gender dysphoria will persist, as against the majority who will desist, absent transition and 'affirmation.'"). Nor are there any "laboratory, imaging, or other objective tests to diagnose a 'true transgender' child." Laidlaw Decl. at 4 (citation omitted).

In fact, contrary to Plaintiffs' claim that the group of gender dysphoric youth whose dysphoria will persist into adulthood is "clearly identifiable," Br., Doc. 8 at 37, the Endocrine Society itself acknowledges that, "[w]ith current knowledge, we cannot predict the psychosexual outcome for any specific child," Endocrine Society Guidelines at 3876. As Dr. Cantor explains, while "[m]ultiple research teams have reported that, on average, groups of persisters are somewhat more gender non-conforming than desisters," the differences are not so stark "as to usefully predict the course of a particular child." Cantor Decl. ¶ 41. And while one single research team (the Olson group that Plaintiffs' experts rely on) has claimed that they had developed a model of distinguishing persisters from desisters, in fact the data showed that the

"model does not distinguish likely from unlikely to transition," but only "unlikely from even less likely to transition." *Id.* ¶ 42.

2. Adult-Onset Gender Dysphoria

In contrast to childhood-onset gender dysphoria, "[p]eople with adult-onset gender dysphoria typically attend clinics requesting transition services in mid-adulthood, usually in their 30s or 40s. Such individuals are nearly exclusively male." *Id.* ¶ 28. It is widely understood that patients presenting with adult-onset gender dysphoria are likely to have other psychological ailments, or comorbidities, that clinics have traditionally sought to diagnose and treat *before* providing transition treatment. Clinics thus "performed 'gate-keeping' procedures, disqualifying from medical services people with mental health or other contraindications." *Id.* ¶ 30. Once screened, adults "who underwent complete transition (*i.e.*, social, plus hormonal, plus surgical transition)" have self-reported low rates of regret and a generally improved mental condition. *Id.* ¶ 29. There are some important caveats, though.

First, the fact "that rates of mental health issues among [gender dysphoric adults] are highly elevated both before and after transition," but "that rates were less elevated among those who completed transition" could simply be an effect of the gate-keeping function performed by the gender clinics. *Id.* ¶ 31. That is, "[t]he side-effect of removing [patients with mental health issues] from the samples of transitioners is that if a researcher compared the average mental health of individuals

coming into the clinic with the average mental health of individuals going through medical transition, then the post-transition group would appear to show a substantial improvement, even though transition had *no effect at all*: The removal of people with poorer mental health created the statistical illusion of improvement among the remaining people." *Id.* ¶ 32.

Second, many of the studies of adult transitioners had very high attrition rates, with "more than 40% of patients becoming 'lost to follow-up.'" *Id.* ¶ 31. "The very high 'lost to follow-up' rate leaves open the possibility of considerably more negative results overall." *Id.* Tragically, since suicide rates for people who transition are generally elevated—as discussed more below—that is in fact likely to be the case. *See id.* ¶¶ 80-86.

3. Adolescent-Onset Gender Dysphoria

Although the DSM-5 lumped adult-onset and adolescent-onset gender dysphoria together, a distinct "third profile has recently begun to present to clinicians or socially, characteristically distinct from the previously identified ones." *Id.* ¶ 71. According to clinicians throughout the world, this is a new clinical phenomenon. *See* Hunter Decl. ¶¶ 79-88 (collecting examples).

"Unlike adult-onset gender dysphoria and unlike childhood-onset, this group is predominately biologically female. This group first presents in adolescence, but lacks the history of cross-gender behavior in childhood like the childhood-onset

cases have." Cantor Decl. ¶ 71. "It is this feature which led to the term Rapid Onset Gender Dysphoria (ROGD)." *Id.*; *see* Littman, *Rapid-Onset Gender Dysphoria*. As noted, "[t]he majority of cases appear to occur within clusters of peers and in association with increased social media use and especially among people with autism or other neurodevelopmental or mental health issues." Cantor Decl. ¶ 71 (footnotes and citations omitted).

It is not well understood, or even well studied at this point, why adolescent females are presenting in record numbers with self-described gender incongruence. *See generally* Kenny Decl. at 3-34.[14] But given that cases are appearing in clusters—which was not the case with traditional gender dysphoria—at least one researcher has hypothesized a peer-contagion aspect, meaning there could be at play a "process where an individual and peer mutually influence each other in a way that promotes emotions and behaviors that can potentially have negative effects on their development." Littman, *Rapid-Onset Gender Dysphoria* at 4. "Peer contagion has been associated with depressive symptoms, disordered eating, aggression, bullying, and drug use." *Id.* Thus, while "[i]t is unlikely that friends and the internet can make people transgender," "it is plausible that the following can be initiated, magnified, spread, and maintained via the mechanisms of social and peer contagion: (1) the

[14] *See also* Anna Hutchinson et al., *In Support of Research Into Rapid-Onset Gender Dysphoria*, 48 ARCHIVES OF SEXUAL BEHAVIOR 79-80 (2020).

belief that non-specific symptoms (including the symptoms associated with trauma, symptoms of psychiatric problems, and symptoms that are part of normal puberty) should be perceived as gender dysphoria and their presence as proof of being transgender; (2) the *belief* that the only path to happiness is transition; and (3) the *belief* that anyone who disagrees with the self-assessment of being transgender or the plan for transition is transphobic, abusive, and should be cut out of one's life." *Id.* at 33; *see also* Kenny Decl. at 3-34; Hruz Decl. ¶ 45; Cantor Decl. ¶ 71.

Regardless of its cause, the phenomenon has been felt across the globe. Hunter Decl. ¶¶ 66-88.[15] Whereas traditionally the ratios of gender dysphoric youth weighted heavily in favor of biological males, gender clinics are now seeing mostly gender dysphoric females. "In the UK … the number of adolescent girls seeking sex transitioning exploded over **4,000%** in the last decade." Hruz Decl. ¶ 72 (emphasis added). Sweden reported a **1,500%** increase in the same time period. Kenny Decl. at 16-17 (emphasis added). At a Toronto clinic, "the male-to-female sex ratio for the years 1999-2005 was 2.11:1, whereas for the years 2006-2013 it was 1:1.76."[16] Similar or more extreme trends have been observed elsewhere: a clinic in Hamburg,

[15] *See also* Zucker, *Adolescents With Gender Dysphoria*, *supra*, at 1983-84 (surveying analyses of gender dysphoric youth in the UK, Canada, Netherlands, Germany, Finland, and United States).
[16] Zucker, *Adolescents With Gender Dysphoria*, *supra*, at 1984.

Germany, has a male-female ratio of 1:4.29, while one in Helsinki, Finland has a ratio of 1:6.83.[17]

4. Models of treatment

Because desistance is probable, though not inevitable, for most gender dysphoric youth, "the 'watchful waiting' method became the standard approach." Cantor Decl. ¶ 39. "Watchful waiting does not mean do nothing but passively observe the child"; rather, it includes providing the child—and other family members as appropriate—therapy to resolve other issues which may be present and which "may be exacerbating psychological stress or dysphoria." *Id.* ¶ 50. Counseling may "include interventions that focus on the co-existing problems of the child and/or the family; helping parents and the child to bear the uncertainty of the child's psychosexual outcome; and providing psycho-education to help the child and the family to make balanced decisions regarding topics such as the child's coming out, early social transitioning, and/or how to handle peer rejection or social ostracism."[18]

Providing therapy during this time is important to allow space for the child to explore his or her gender and sexual identities without being locked into a specific pathway. *See* Kenny Decl. at 35-55. For example, given that the majority of gender dysphoric youth will have their dysphoria resolve and thereafter identify as gay or

[17] *Id.*
[18] Jiska Ristori & Thomas D. Steensma, *Gender Dysphoria in Childhood*, 28 INT'L REV. OF PSYCHIATRY No. 1, 18 (2016).

lesbian, a number of therapists have noted that, "[w]hen a dysphoric same-sex attracted young person in the midst of [his or her] developmental process presents for mental health care, a clinician overtly affirming the patient's cross-sex gender identity would be failing this patient by not addressing the patient's struggle with same-sex attraction and/or internalized homophobia."[19] "Several case reports indicate that the distress of young people with [gender dysphoria] can lessen or resolve with appropriate psychotherapeutic interventions that address the central issues."[20] Dr. Kenny, a psychotherapist who treats many gender dysphoric youth, provides a number of such vignettes in her expert report. *See* Kenny Decl. at 35-55.

The watchful waiting paradigm thus recognizes that "[t]he balance of potential risks to potential benefits is very different for groups likely to desist versus groups unlikely to desist: If a child is very likely to persist, then taking on the risks of medical transition might be more worthwhile than if that child is very likely to desist in transgender feelings." Cantor Decl. ¶ 39. But because there is no diagnostic tool to determine whose gender dysphoria will persist into adulthood and whose will not—and because we know that most cases *will* desist—watchful waiting provides

[19] Robert D'Angelo et al., *One Size Does Not Fit All: In Support of Psychotherapy for Gender Dysphoria*, ARCHIVES OF SEXUAL BEHAVIOR No. 50, at 12 (2021), *available at* https://perma.cc/9Y2V-EVWX.
[20] *Id.* (citations omitted).

treatment to a gender dysphoric minor while waiting to see whether the dysphoria will persist before experimenting with irreversible and unproven interventions.

Plaintiffs oppose watchful waiting and instead support a second, more experimental—and far mor riskier—approach called "affirmation therapy" or "gender affirming care." Though Plaintiffs and their experts rely on the WPATH Standards and the Endocrine Society Guidelines as establishing "gender affirming care" as the accepted "standard of care," Br., Doc. 8 at 16 (citing expert reports), in fact these proposed treatment guidelines from various professional societies and interest groups simply reflect "increasingly divergent" views for "how to approach the management of gender dysphoria in youth," Hunter Decl. ¶89. They are not "standards of care" in the traditional sense.

"Gender affirming care" "is focused on affirming the child's (trans)gender identification" and supports the child "in transitioning to the desired/experienced gender role."[21] Notably, affirming a minor's perceived (and likely transitory) gender identity is not a neutral intervention. That is obviously true of surgical interventions and—as discussed in greater detail below—cross-sex hormones and puberty blockers. But it is also true of social transition. Partial or complete gender social transition prior to puberty is considered a "unique predictor of persistence," disrupting the

[21] Ristori & Steensma, *supra*, at 17.

natural path of desistance.[22] This is particularly true for boys, who traditionally composed the majority of childhood gender dysphoria cases.[23] As one prominent clinician concluded: "A gender social transition in prepubertal children is a form of psychosocial treatment that aims to reduce gender dysphoria, but with the likely consequence of subsequent (lifelong) biomedical treatments…. Gender social transition of prepubertal children will increase dramatically the rate of gender dysphoria persistence when compared to follow-up studies of children with gender dysphoria who did not receive this type of psychosocial intervention and, oddly enough, might be characterized as" *causing* the persistent dysphoria.[24]

C. The Dutch Protocol and Beyond

Affirmation treatment has in recent years moved beyond mere therapeutic affirmation and social transition to include medically transitioning minors using puberty blockers, cross-sex hormones, and surgical interventions. The basis for doing so "stems from a single Dutch proof of concept study, the outcomes of which were documented in two studies" published in 2011 and 2014. Levine et al., *Reconsidering Informed Consent* at 9; *see* Cantor Decl. ¶¶ 44-51; Hunter Decl. ¶ 69. The first

[22] Devita Singh et al., *A Follow-Up Study of Boys with Gender Identity Disorder*, 12 FRONTIERS IN PSYCHIATRY 14 (Mar. 2021), *available at* https://doi.org/10.3389/fpsyt.2021.632784.
[23] *See id.* at 14-15; Hruz Decl. ¶ 47; Cantor Decl. ¶ 41.
[24] Kenneth J. Zucker, *Debate: Different Strokes for Different Folks*, 25 CHILD & ADOLESCENT MENTAL HEALTH No. 1, 36-37 (May 2019). This observation is consistent with the robust studies showing desistance in most gender dysphoric youth, most of whom "were receiving professional psychosocial support across the study period aimed not at affirming cross-gender identification, but at resolving stressors and issues potentially interfering with desistance." Cantor Decl. ¶ 37.

study looked at puberty suppression.[25] The second looked at a subset of patients that completed transition surgery.[26] Plaintiffs' experts rely heavily on this study to proclaim that "medical treatment for Gender Dysphoria offers significant psychological benefit to transgender young people." Hawkins Decl., Doc. 8-1 at 17; *see* Rosenthal Decl., Doc. 8-3 at 18. Understanding the study—what it did, and what it didn't do—is thus key to understanding modern treatment options.

1. The Dutch Study

The problem the Dutch study sought to solve was the observation that adult gender transitions frequently led to disappointing cosmetic outcomes, particularly for biological males. "In the mid 1990s, a team of Dutch researchers hypothesized that by carefully selecting a subset of gender dysphoric children who would likely to be transgender-identified for the rest of their lives, and by medically intervening before puberty left an irreversible mark on their bodies, the cosmetic outcomes would be improved—and as a result, mental health outcomes might be improved." Levine et al., *Reconsidering Informed Consent* at 9-10; *see* Cantor Decl. ¶ 45.

The protocol the Dutch study followed was to use watchful waiting, without any social transition, for gender dysphoric youth before age 12; to allow puberty blockers once puberty began but not before age 12 (the average age of intervention

[25] *See* Annelou de Vries et al., *Puberty Suppression in Adolescents with Gender Identity Disorder: A Prospective Follow-Up Study*, 8 J. of Sexual Medicine No. 8, 2276-83 (Aug. 2011).
[26] *See* Annelou de Vries et al., *Young Adult Psychological Outcome After Puberty Suppression and Gender Reassignment*, 130 PEDIATRICS, No. 4, 696-704 (Oct. 2014).

was 13.6 years old); to allow cross-sex hormones only after age 16 (average age of intervention: 16.7); and cross-sex surgeries after age 18 (average age of intervention: 20.7 years). Cantor Decl. ¶¶ 46-47. Notably, "[t]he age cut-offs of the Dutch Approach authors were not based on any research demonstrating their superiority over other potential age cut-offs," but instead were "chosen to correspond to ages of consent to medical procedures under Dutch law." *Id.* ¶ 48.

The participants for the study were chosen carefully. "From the 196 adolescents initially referred, 111 were considered eligible to start puberty blockers, and of this group, only the 70 most mature and mentally stable who proceeded to cross-sex hormones were included in the study." Levine et al., *Reconsidering Informed Consent* at 12. All were provided extensive mental health assessments and support, including clinical interviews, formal psychological testing with validated psychometric instruments, and multiple counseling sessions with the child and the child's parents. Cantor Decl. ¶ 50. All participants were cross-sex identified, "with no cases of non-binary identities." Levine et al., *Reconsidering Informed Consent* at 12. Of the 70 children who formed the starting cohort, only 55 completed the study and participated in an assessment a year after surgery. One participant died from the surgical intervention; four refused further participation; three became ineligible for treatment due to complications such as obesity and diabetes; and six had surgery within a year and were ineligible to complete the questionnaire. The outcomes for

these patients were thus not included in the study's results. Nor did all of the 55 remaining subjects participate in every aspect of the follow-up assessment. Only 32 provided answers regarding their psychological functioning for all three time periods studied—at intake, while on puberty suppression, and after gender reassignment surgery. *See* Hunter Decl. ¶¶ 69-78. [27]

The authors of the study reported that the youth given puberty blockers had improved on several variables upon follow-up as compared to pre-suppression measurement, including depressive symptoms and general functioning. But "[n]o changes were detected in feelings of anxiety or anger or in gender dysphoria as a result of puberty suppression; however, natal females using puberty suppression suffered *increased* body dissatisfaction both with their secondary sex characteristics and with nonsexual characteristics." Cantor Decl. ¶ 54. As for the 55 participants who went on to have surgery and participated in an assessment a year afterward, the authors reported two main findings. One, gender dysphoria had resolved for the participants when they were surveyed a year after surgery.[28] Two, a year after surgery the participants reported psychological well-being outcomes "comparable to same-age peers"[29]—just as they had *before* transition, Hunter Decl. ¶ 71.

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[27] *See also* de Vries et al., *Young Adult Psychological Outcome After Puberty Suppression and Gender Reassignment*, *supra*, at 696-700; Levine et al., *Reconsidering Informed Consent* at 12.
[28] de Vries et al., *Young Adult Psychological Outcome After Puberty Suppression and Gender Reassignment*, *supra*, at 701.
[29] *Id.* at 702.

There are several limitations to the Dutch study. First, because there was no control group—another group of adolescents matching the first group, but not receiving medical or social support—it is impossible to tell the source of the improvements. That is, while "[t]he inclusion of psychotherapy and support during the watchful waiting period" was, clinically, "a great benefit to the gender dysphoric children and their parents," it poses a scientific complication because it "becomes difficult to know to what extent the outcomes of these cases might be related to receiving psychotherapy," receiving other medical interventions, or simply experiencing "'spontaneous' desistance.'" Cantor Decl. ¶ 51. As a result, "any conclusion that puberty blockers" or the other interventions "improved the mental health of the treated children is not justified by the data." *Id.* ¶ 55. Indeed, the authors of the study themselves noted that other factors such as psychological support "'may have contributed to the psychological well-being of these gender dysphoric adolescents,'" and thus "*cautiously* conclude[d] that puberty suppression *may be* a valuable *element* in clinical management of adolescent gender dysphoria.'" *Id.* ¶ 55-56 (emphasis by Dr. Cantor) (citation omitted).

Second, given that the study completed about a year-and-a-half after participants underwent surgery, we do not know the participants' long-term outcomes. Nor is there any knowledge of the fate of the 126 patients who were referred to the clinic but were not selected to participate. One study has reported on "14 adolescents who

sought gender reassignment in the same clinic, but were disqualified from treatment due to 'psychological or environmental problems.'" Levine et al., *Reconsidering Informed Consent* at 12. That "study found that at follow-up 1-7 years after the original application, 11 of the 14 no longer wished to transition, and 2 others only slightly regretted not transitioning." *Id.* There is also one case study of a female-to-male patient treated by the Dutch team in the 1990s. At age 33, he reported that he did not regret transition, but did report "struggling with significant shame related to the appearance of his genitals and to his inability to sexually function; had problems maintaining long-term relationships; and experienced depressive symptoms." *Id.* "Notably, these problems had not yet emerged when the same patient was assessed at the age of 20, when he reported high levels of satisfaction in general.…" *Id.*

Third, there are many unanswered questions about the reported reduction in feelings of gender dysphoria and "the lack of meaningful changes in psychological function." *Id.* It could be, for instance, that there is simply no correlation between psychological functioning and the use of the Utrecht Gender Dysphoria scale which the study used. *Id.* at 10-11. Or it could be that the high psychological functioning of the screened participants at baseline meant that there was not much room for improvement. *Id.* at 10-11. Or it could be that the use of different "male" and "female" gender dysphoria scales skewed the results, particularly since biological males were given the "male" scale up to their surgeries and then were switched over to the

"female" scale. *Id.* The study itself cannot answer these questions. *See* Hunter Decl. ¶¶ 71-76.

Fourth, there are myriad other unanswered questions. Would the outcomes have been any different if the participants were not, on average, already in the healthy psychological range before they began treatment? How did the 13% of the initial cohort who did not or could not participate in the final survey fare? What were the participants' long-term physical health outcomes? Did the puberty blockers, cross-sex hormones, and surgical procedures cause any physical problems for the participants down the line (other than to the non-reported participant who died because of the surgery)? Would the results be similar for youths whose gender-related distress began in adolescence rather than childhood? And most importantly, how do gender dysphoric youth fare if they do not receive the experimental gender transition procedures, and how would that control group compare to the study's experimental cohort? Again, the study provided no answers to these questions.

2. Beyond the Dutch Protocol

The Dutch study was important. Its report of partial success "called for additional research, both to confirm those results and to search for ways to maximize beneficial results and minimize negative outcomes." Cantor Decl. ¶ 58. "Instead," as Dr. Cantor reports—and as Plaintiffs' expert reports themselves show by their unbridled reliance on the study—"many other clinics and clinicians proceeded on

the basis of the positives only, broadened the range of people beyond those represented in the research findings, and removed the protections applied in the procedures that led to those outcomes." *Id.*

The Gender Multispecialty Service at Boston Children's Hospital was the first transgender clinic for children in the United States.[30] It opened in 2007. Since then, at least 64 other specialty clinics have joined the mix.[31] *See* Kenny Decl. at 28-29 (showing map). And that number does not include general practice physicians or places like Planned Parenthood that also administer "gender affirming hormone therapy."[32]

The dramatic increase in providers and patients, combined with the political zeitgeist, has led to a sharp departure from the Dutch protocol. "Many clinics and individual clinicians have reduced the minimum age for transition to 10 instead of 12." Cantor Decl. ¶ 58. "While the Dutch Protocol involves interdisciplinary teams of clinicians, many clinics now rely on a single assessor, in some cases one without adequate professional training in childhood and adolescent mental health. Comprehensive, longitudinal assessments (*e.g.*, one and a half *years*) became approvals after

[30] *Gender Multispeciality Service (GeMS)*, BOSTON CHILDREN'S HOSP., https://www.childrenshospital.org/programs/gender-multispecialty-service (last visited April 28, 2022).
[31] *See Interactive Map: Clinical Care Programs for Gender-Expansive Children and Adolescents*, Hum. Rights Council, https://www.hrc.org/resources/interactive-map-clinical-care-programs-for-gender-nonconforming-childr (last visited April 28, 2022).
[32] *E.g.*, Planned Parenthood, *Gender Affirming Hormone Therapy*, https://www.plannedparenthood.org/planned-parenthood-mar-monte/patient-resources/gender-affirming-care (last visited Apr. 28, 2022).

one or two assessment sessions." *Id.* "Validated, objective measures of youths' psychological functioning were replaced with clinicians' subjective (and first) opinions, often reflecting only the clients' own self-report. Systematic recordings of outcomes, so as to allow for detection and correction of clinical deficiencies, were eliminated." *Id.*

Moreover, whereas "[t]he average age of initiating puberty blockade in the Dutch study was around 15," the Endocrine Society now recommends starting puberty blockers when a child enters Tanner stage II of puberty, "which can occur as early as 8-9 years."[33] That is before a person become fertile, meaning that "[i]f puberty is blocked before reaching [Tanner stage 3 or 4] the sex glands will be locked in a premature state and incapable of fertility." Laidlaw Decl. at 9. And "[i]rreversible cross-sex hormones, initiated in the Dutch study at the average age of nearly 17, are currently commonly prescribed to 14-year-olds." Levine et al., *Reconsidering Informed Consent* at 13; *cf.* Poe Decl., Doc. 8-7 ¶ 21 (noting that 15-year-old Allison started taking estrogen "approximately seven months ago"). "The fact that children are transitioned before their identity is tested against the biological reality and before natural resolution of gender dysphoria has had a chance to occur is a major deviation from the original Dutch protocol." Levine et al., *Reconsidering Informed Consent* at

[33] Levine et al., *Reconsidering Informed Consent* at 13; *see* Endocrine Society Guidelines at 3870 ("We recommend treating gender-dysphoric/gender-incongruent adolescents who have entered puberty at Tanner Stage G2/B2 by suppression with gonadotropin-releasing hormone agonists.").

13; *see* Hunter Decl. ¶ 105 ("Procedures viewed as 'medically necessary' by some of the proponents of 'gender-affirmative care' for minors now include the suppression of puberty indefinitely in order to present as an ambiguous sex, mastectomy on youth as young as 13 years of age, and 'non-binary' surgeries that preserve a feminine appearance while changing the placement of the nipples to be more reminiscent of a male chest, should the minor's identity reside somewhere along the 'male to female spectrum.'" (footnotes omitted)).

Even assuming that the Dutch studies could be replicated (which, as explained below, they haven't been), these departures cause significant harm. As the founding psychologist at the Boston clinic and another WPATH leader recently wrote in the *Washington Post*: "A flood of referrals to mental health providers and gender medical clinics, combined with a political climate that sees the treatment of each individual patient as a litmus test of social tolerance, is spurring many providers into sloppy, dangerous care."[34] They continued:

> Most [gender clinics] have a single social worker who completes a brief "intake," relying instead on other mental health clinicians in the community to assess patients and offer their conclusions. Frequently, those community clinicians, just like the parents, assume that a more comprehensive assessment will occur in the gender specialty clinic. But in our experience, and based on what our colleagues share, this is rarely the case. Most clinics appear to assume that a referral means a mental

[34] Edwards-Leeper & Anderson, *The Mental Health Establishment is Failing Trans Kids*, *supra*.

> health provider in the community has diagnosed gender dysphoria and thereby given the green light for medical intervention.[35]

Such has certainly been the experience of many parents who turned to gender clinics for help caring for their gender dysphoric children. They found that in-depth psychological help was not offered; that gender clinicians ignored psychological comorbidities and urged transition as a cure-all; and that the specter of suicide was often raised *in front of the child* to coerce treatment:

- "We saw a psychologist at the gender clinic who after one visit with M. and filling out some questionnaires said that she would recommend that M. see the endocrinologist to be prescribed hormones." Martha S. Decl. ¶ 8 (mother of son with diagnosed psychiatric comorbidities who started to identify as transgender as an adolescent).

- "During a family therapy session, the therapist ignored J.'s other comorbidities [OCD, anxiety, depression, and ADHD] and focused solely on gender dysphoria.… *With J. present*, the therapist told me and my wife that kids are more likely to attempt suicide and run away from home if they are not affirmed in their chosen identity." John Roe Decl. ¶¶ 10, 12 (father of son who suddenly identified as transgender in 8th grade and was facilitated in socially transitioning by his school without the parents' knowledge).

- "Shortly after B announced that she identified as a boy [at age 11], I acted on the advice of our family physician and took B to a gender clinic. I naively believed that I would have an opportunity to seek a psychological evaluation and psychological counseling for B. and discuss her sudden identification as a boy prior to any interventions aimed at 'affirming' her choice. However, when my daughter and I arrived at the clinic the staff psychologist did an evaluation, but said she did not have time to see

[35] *Id.*

B. regularly to give more in depth psychological help." Barbara F. Decl. ¶¶ 6-7.

- "At age 13, S. suddenly declared, in a manner which sounded scripted, that she believed she was a boy and wanted to use a male name. When I spoke to her caregivers, they focused on S. wanting to go by a male name and pronouns. I asked them to address S.'s self-harm, anxiety and bulimia, but they refused…. During one visit, with S present, the caregivers stated that 'trans' people are more likely to commit suicide if not affirmed.… Following the psychiatric treatment, S. returned to seeing psychiatrists and counselors that she had previously been seeing. Her medication was adjusted, she stopped self-harming and her tics were better controlled." Kristine W. Decl. ¶¶ 5-7 (mother of daughter with OCD, Tourette's Syndrome, and bulimia, who identified as transgender after spending "copious amounts of time online during the pandemic lockdown").

Ironically, as the political and medical establishment in America has cherrypicked what they wanted from the Dutch study and then swiftly moved beyond its protocol,[36] the Dutch researchers themselves have urged caution. As Dr. Cantor reports, "Dr. Thomas Steensma, central researcher of the Dutch clinic, has decried other clinics for 'blindly adopting our research' despite the indication that those results may not actually apply: 'We don't know whether studies we have done in the past are still applicable to today. Many more children are registering, and also a different type.'" Cantor Decl. ¶ 59 (citation omitted).

[36] Plaintiffs' expert Dr. Hawkins, for instance, relies solely on the 2014 Dutch study for her claim that "[s]cientific literature and clinical experience consistently find that, like social transition, medical treatment for Gender Dysphoria offers significant psychological benefit to transgender young people." *See* Hawkins Decl., Doc. 8-1 at 17.

D. Affirmation Treatment's Lack of Proven Benefits and Its Risks of Long-term Harms

In the decade-or-so since the Dutch studies were published, some research has been done to try to answer some of the questions they left unanswered. But not nearly as much as one might think. In fact, "[t]he latter phases of the Dutch protocol (following puberty blockers with cross-sex hormones and surgery) have never been attempted to be replicated." Hunter Decl. ¶ 70. And recent attempts to replicate the moderately positive results of the first study on puberty blockers have failed. *Id.*[37] Given Plaintiffs' mantra that these treatments are safe, effective, and necessary, it is worth examining them in a bit of detail.

1. Puberty Blockers

Puberty blockers—gonadotrophin releasing hormone (GnRH) agonists—work by causing the pituitary gland to lower the release of the luteinizing hormone (LH) and follicle stimulating hormone (FSH) that are responsible for sex hormone production and fertility. Laidlaw Decl. at 12. "The result is a blockage of the signaling of the pituitary to the testicles or ovaries and therefore underproduction of the sex hormones." *Id.* At 12-13.

GnRH agonists are used to treat a number of conditions. Lupron, for instance, was developed to treat prostate cancer by lowering testosterone in adult males. The

[37] *E.g.*, Polly Carmichael et al., *Short-term Outcomes of Pubertal Suppression in a Selected Cohort of 12 to 15 Year Old Young People with Persistent Gender Dysphoria in the UK*, 16 PLos ONE No. 2, 18-19 (Feb. 2021), *available at* https://doi.org/10.1371/journal.pone.0243894.

FDA has approved this use of Lupron. *Id.* at 13. "Another labeled use of GnRH agonist medication is for the treatment of central precocious puberty," which is when "pituitary signaling is activated at an abnormally young age, say age four, to begin pubertal development." *Id.* A GnRH agonist may thus be used to halt puberty until a normal time for pubertal development; the medication is then stopped and puberty is allowed to proceed. "The end result is to restore normal sex gland function and timing of puberty." *Id.*

The FDA has not approved the use of puberty blockers to treat gender dysphoria. But when they are used for this treatment, it is not like treating a child with precocious puberty. Rather, the intervention is used to *impose* a diseased state (hypogonadotropic hypogonadism) and disrupt the healthy functioning of the pituitary gland and sex organs. *Id.* at 13. And whereas treating precocious puberty with puberty blockers delays puberty until a natural time, using them to treat gender dysphoria will permanently disrupt natural puberty if cross-sex hormones are then used (which is almost always the case). Laidlaw Decl. at 13-15; *see* Van Meter Decl. at 11 (noting that comparing the use of puberty blockers to treat precocious puberty vs. gender dysphoria is "comparing apples to oranges"); *contra* U.S. Br., Doc. 62-1 at 15 (asserting that the treatments here are "not experimental" because "medications … have been used for decades to treat … 'precocious puberty'").

The use of puberty blockers to treat gender dysphoria has significant, lasting effects. Here are four. First, "[t]he child will continue their chronological age progression toward adulthood and yet remain with undeveloped genitalia. This will lead to sexual dysfunction including potential erectile dysfunction and inability to ejaculate and orgasm for the male. For the female with undeveloped genitalia potential sexual dysfunction may include painful intercourse and impairment of orgasm." Laidlaw Decl. at 14.

Second, if puberty blockers are used at Tanner Stage 2 of puberty, as the Endocrine Society suggests, then "the gonads will remain in an immature, undeveloped state," and permanent sterility will likely result. *Id.* at 14; *see also* Hruz Decl. ¶¶ 61-63.

Third, puberty is important for brain development, and going through puberty with one's peers is important for psychosocial development. Laidlaw Decl. at 15. The long-term effects of not going through natural puberty are not well understood, but could be—and likely are—harmful. *Id.*; Hruz Decl. ¶¶ 61-67.

Fourth, "[c]hildren placed on puberty blockers have slower rates of growth in height, and an elevated risk of low bone-mineral density." Hruz Decl. ¶ 67. This could lead to future risk of osteoporosis and the potential for debilitating spine and hip fractures. Laidlaw Decl. at 14-15; Van Meter Decl. at 11-12. The Endocrine Society itself warns that pubertal suppression "may include adverse effects on bone

mineralization …, compromised fertility if the person subsequently is treated with sex hormones, and unknown effects on brain development." Endocrine Society Guidelines at 3882. Then the Guidelines note: "Few data are available on the effect of GnRH analogs on [bone mineral density] in adolescents with GD/gender incongruence." *Id.*; *see also* Van Meter Decl. at 12.

In 2020, Britain's National Institute for Health and Care Excellence (NICE) conducted an extensive literature review of studies concerning the use of puberty blockers to treat gender dysphoria in children and adolescents. *See* NICE Puberty Blocker Evidence Review. The researchers found that "[a] key limitation to identifying the effectiveness and safety of GnRH analogues for children and adolescents with gender dysphoria is the lack of reliable comparative studies." *Id.* at 12. The review concluded that "the studies that reported impact on the critical outcomes of gender dysphoria and mental health (depression, anger and anxiety), and the important outcomes of body image and psychosocial impact (global and psychosocial functioning), in children and adolescents with gender dysphoria are of very low certainty using modified GRADE … [and] suggest little change with GnRH analogues from baseline to follow-up." *Id.*

2. Cross-Sex Hormones

Using cross-sex hormones to treat gender dysphoria means to provide unnatural (or supraphysiologic) levels of testosterone to females—"anywhere from 6 to

100 times higher than native female testosterone levels"—and unnatural levels of estrogen to males—"vary[ing] from two to eight or more times higher than normal adult male levels." Laidlaw Decl. at 17-19. Because the use of cross-sex hormones to "treat" gender dysphoria in children is so new, "long-term outcomes are unknown." Hruz Decl. ¶ 62.

The amount of testosterone given to females raises the level of testosterone in the body to "the same order as dangerous endocrine tumors." Laidlaw Decl. at 17. The intervention is associated with multiple health risks. *Id.* at 17-18. For instance, "[s]tudies of transgender males taking testosterone have shown up to a nearly 5-fold increased risk of myocardial infarction relative to females not receiving testosterone." *Id.* at 17. Other likely effects include irreversible changes to the vocal cords, polycystic ovaries, atrophy of the lining of the uterus, increase in fibrous breast tissue, decrease in normal glandular tissue, and an increased risk of ovarian and breast cancers. *Id.* at 17-18. Then there are the side effects of the drugs themselves that occur regardless of sex—mood disorders, psychosis, and psychiatric disorders, to name but a few. *Id.*

As for biological males taking supraphysiologic doses of estrogen, effects include gynecomastia (the abnormal growth of breast tissue that is typically corrected by medication or surgery); an increased risk of myocardial infarction, cardiovascular disease, and thromboembolism (a blood clot that develops in a deep vein); and an

increased risk (to the tune of 46 times higher) of developing breast cancer. *Id.* at 18-19.

As it did for puberty blockers, the UK's NICE evidence review for cross-sex hormones concluded that the state of the science regarding cross-sex hormones is still largely undeveloped. It thus urged significant caution: "Any potential benefits of gender-affirming hormones must be weighed against the largely unknown long-term safety profile of these treatments in children and adolescents with gender dysphoria." NICE Cross-Sex Hormone Evidence Review at 14.

3. Surgical Interventions

The use of puberty blockers and cross-sex hormones to treat pediatric gender dysphoria sets children on a pathway that often leads to surgical interventions. There are a variety of "gender affirming" surgeries, including mastectomies, metoidioplasty, phalloplasty, and vaginoplasty. Laidlaw Decl. at 19-21. Mastectomies are the surgical removal of the breasts; the procedure "cannot be reversed." *Id.* at 20. "The female will never regain healthy breasts capable of producing milk to feed a child." *Id.* "Other types of surgery for females include those of the genitalia and reproductive tract," many of which cause permanent sterilization. *Id.* at 20-21.

"Gender affirming" treatments for male "include removal of the testicles alone to permanently lower testosterone levels." *Id.* at 21. "Further surgeries may be done in an attempt to create a pseudo-vagina which is called vaginoplasty. In this

procedure, the penis is surgically opened and the erectile tissue is removed. The skin is then closed and inverted into a newly created cavity in order to simulate a vagina." *Id.* As Dr. Laidlaw notes, "[i]t is important to understand that the use of puberty blockers for the male makes the vaginoplasty procedure even more complicated" because the "surgeon has a limited length of penile skin to work with." *Id.* "In these cases a technique is employed whereby a segment of the large bowel (colon) is surgically excised … then connected to the short, inverted penile skin." *Id.*

As mentioned, the primary study examining the effects of surgical interventions to treat gender dysphoria in minors was the Dutch study, and its period of follow-up was less than 2 years post-surgery. The study has never been replicated. Hunter Decl. ¶ 70.

In 2016, the Centers for Medicare & Medicaid Services released its national coverage analysis for gender dysphoria and gender reassignment surgery.[38] The analysis looked at whether the data supported using surgical interventions to treat gender dysphoria in the Medicare population. The conclusion? "[T]here is not enough high quality evidence to determine whether gender reassignment surgery improves health outcomes for Medicare beneficiaries with gender dysphoria and whether patients

[38] *See* Tamara Syrek Jensen, et al., *Decision Memo for Gender Dysphoria and Gender Reassignment Surgery* (CAG-00446N) (Aug. 30, 2016), *available at* https://perma.cc/9CQN-938N.

most likely to benefit from these types of surgical intervention can be identified prospectively."[39]

To be sure, the CMS analysis determined only whether surgical interventions were medically necessary for the Medicare population, not children. But the lessons are obvious: There is no reason to think that the Constitution requires Alabama to allow experimental transitional surgeries *on children* when the CMS found the evidence did not support performing the surgeries on adults.

4. Effect on Suicide Rates

Throughout their briefing, Plaintiffs focus on the specter of suicide to claim that puberty blockers and cross-sex hormones are necessary medical interventions. *See* Br., Doc. 8 at 18, 20, 34, 36. The truth is that, while suicide rates are unfortunately generally elevated for persons suffering from gender dysphoria, transition interventions have not been shown to reduce the rate of suicide.

First, "[t]he notion that trans-identified youth are at alarmingly high risk of suicide usually stems from biased online samples that rely on self-report, and frequently conflates suicidal thoughts and non-suicidal self-harm with serious suicide attempts and completed suicides." Levine et al., *Reconsidering Informed Consent* at 8. While both suicide and suicidal ideation are cause for concern and warrant treatment, they are different phenomena: suicide "refers to completed suicides and the

[39] *Id.*

sincere intent to die," while suicidality "refers to parasuicidal behaviors, including suicidal ideation, threats, and gestures" and typically "represent cries for help rather than an intent to die." Cantor Decl. ¶ 81. Both are "inextricably linked" to mental illness. *Id.* ¶ 82. For instance, "suicidality is a well-documented symptom of Borderline Personality Disorder (as are chronic identity issues), and personality disorders are highly elevated among transgender populations, especially adolescent-onset. Thus, the elevations of suicidality among gender dysphoric adolescents may not be a result of anything related to transition (or lack of transition), but to the overlap with mental illness of which suicidality is a substantial part." *Id.*

Second, to the extent a gender dysphoric young person is suffering from suicidal ideation, the "gender affirming" treatment protocols agree that this mental health issue should be treated and resolved *before* the person pursues transition. Indeed, "[a] primary criterion for readiness for transition used by the clinics demonstrating successful transition is the absence or resolution of other mental health concerns, such as suicidality." *Id.* ¶ 83.

Third, while suicide rates are tragically elevated for people suffering from gender dysphoria (as they are for people suffering from other mental illnesses), "[u]ntil recently, little was known about the actual rate of suicide of trans-identified youth." Levine et al., *Reconsidering Informed Consent* at 8. "However, a recent analysis of data from the biggest pediatric gender clinic in the world, the UK's Tavistock,

found the rate of completed youth suicides to be 0.03% over a 10-year period, which translates into the annual rate of 13 per 100,000. While this rate is significantly elevated compared to the general population of teens, it is far from the epidemic of trans suicides portrayed by the media"—or by Plaintiffs. *Id.* (citation omitted).

Fourth, it is not the case that data show that transitioning reduces suicide rates over the long-term, or even over the short-term. Data from the Tavistock clinic, for instance, "did not show a statistically significant different between completed suicides in the 'waitlist' vs. the 'treated' groups." *Id.* at 9. And suicide rates remain unfortunately "elevated even after complete transition, as shown by a comprehensive review of 19 studies of suicidality in gender dysphoria." Cantor Decl. ¶ 84; *see also* WPATH Standards at 108.

The most comprehensive review available was published in 2020 in the *American Journal of Psychiatry* by Richard Bränström and John E. Pachankis.[40] It initially reported long-term improvement in mental health that the authors attributed to gender-transition procedures. But after the report was published, over a dozen scientists wrote to the *Journal* to identify serious methodological problems with the study. Among other things, they pointed out that the data actually revealed that "the risk of being hospitalized for a suicide attempt was 2.4 times *higher* if [patients] had

[40] Richard Bränström and John E. Pachankis, *Reduction in Mental Health Treatment Utilization Among Transgender Individuals After Gender-affirming Surgeries: A Total Population Study*, 177 AM. J. OF PSYCHIATRY 727 (2020).

undergone gender-corrective surgery than if they had not."[41] This observation, though clinically concerning, turned out not to be statistically significant. But another one was: As the authors of the original review noted in a correction they issued, "individuals diagnosed with gender incongruence who had received gender-affirming surgery were *more likely* to be treated for anxiety disorders compared with individuals diagnosed with gender incongruence who had not received gender-affirming surgery."[42] In the end, the *Journal* published a correction explaining that the study "demonstrated no advantage of surgery in relation to subsequent mood or anxiety disorder-related health care visits or prescriptions or hospitalizations following suicide attempts."[43] *See* Cantor Decl. ¶ 52; Van Meter Decl. at 12-13; Hruz Decl. ¶ 12.

E. The Problem of Informed Consent

So far, it is clear that: (1) the majority of cases of gender dysphoria in youth will resolve naturally by adulthood, (2) it is impossible to tell on a case-by-case basis whose dysphoria will persist and whose will not, (3) even if one could identify the small minority of persisters, the state of the science supporting the use of puberty blockers and cross-sex hormones is undeveloped and uncertain at best, (4) the use

[41] Anes Wold, *Gender-Corrective Surgery Promoting Mental Health in Persons With Gender Dysphoria Not Supported by Data Presented in Article*, 177 AM. J. PSYCHIATRY 768, 768 (Aug. 2020); *see also* Richard Bränström and John E. Pachankis, *Toward Rigorous Methodologies for Strengthening Causal Inference in the Association Between Gender-Affirming Care and Transgender Individuals' Mental Health: Response to Letters*, 177 AM. J. PSYCH., No. 8, 772 (Aug. 2020), table 1 (emphasis added).
[42] Bränström & Pachankis, *Toward Rigorous Methodologies*, *supra*, at 768 (emphasis added).
[43] *Correction to Bränström & Pachankis*, 177 AM. J. PSYCH, No. 8, 734 (2020).

of puberty blockers and cross-sex hormones come with significant risks of long-term harms, and (5) the hormones and surgical interventions do not lead to decreased suicide rates or improved psychological outcomes. Yet Plaintiffs and their experts assure the Court that healthcare providers "undertake a rigorous informed consent process." Br., Doc. 8 at 13.

It is difficult to fathom how this could possibly be true—how a child, or her parents, could ever provide informed consent to set forth on such an experimental pathway. There is very little reason to think that a child in early adolescence can properly weigh these lifetime risks, particularly when the popular narrative and many doctors so distort what the evidence shows regarding the possible benefits of puberty blockers, cross-sex hormones, and surgical interventions. *E.g.*, Crowley Decl. at 4-5 (parent of gender dysphoric child with psychological comorbidities recounting the lack of adequate information given to her by the gender clinic doctors who prescribed puberty blockers and cross-sex hormones); Frietas Decl. ¶ 6 ("I went to a gender therapist who diagnosed me with gender dysphoria and told me that transition was the only treatment that would alleviate my discomfort and anxiety.… I believe that healthcare providers did not ask me about mental health issues because they believed that those issues were caused by gender dysphoria and that transitioning would fix the problem. In fact, the opposite was true.").

As the Endocrine Society Guidelines recognize, there are not even "formally evaluated decision aids available to assist in the discussion and decision regarding the future fertility of adolescents or adults beginning gender-affirming treatment." Endocrine Society Guidelines at 3879. How is an 11-year-old girl feeling uncomfortable in her body to weigh the probabilities that her gender-based distress will resolve without hormonal or surgical intervention? How is she to know whether she will want to have children in twenty years? Whether she will want to breastfeed them? Whether she will come to regret her deepened voice and irreversible mastectomy? What it would have been like to develop and go through puberty with her peers? Whether it would all be worth it? These are tough questions for anyone. They are unfair questions to ask a child. Hunter Decl. ¶¶ 114-19; Laidlaw Decl. at 22-23.

It is little wonder, then, that at least some children who are asked to answer these questions feel betrayed by the adults they turned to for help. Because the evidence in this entire field is so poor, no one really knows how many patients come to regret their transition, but the number is not insignificant. "A recent study from a UK adult gender clinic showed that over 10% of young people treated with gender-affirmative interventions detransitioned within 16 months of staring treatment," while "[a]nother 22% of patients disengaged from the clinic without completing their treatment plans." Hunter Decl. ¶ 61. "Another clinic population study found that over 12% of those who had started hormonal treatments either detransitioned or

documented regret, while 20% stopped the treatments for a wider range of reasons." *Id.* ¶ 62.

There are now many online support groups for people who feel betrayed by the medical establishment and the predominant narrative that transitioning is medically required to treat gender dysphoria.[44] As more and more young people are learning, that was not the case for them.

Corinna Cohn, for instance, suffered from gender dysphoria as a boy. At age 18, after seeing a psychologist, Cohn started cross-sex hormones and underwent complete sex reassignment surgery at 19. The surgery was successful, but ultimately unsatisfying:

> After healing from my sex change surgery I thought that my transition journey was over. I discontinued therapy, and I began focusing on my career. I found it was easier to socialize and make new friends with my new confidence and feelings of being my authentic self. As I reached my late twenties, my friends began pairing off and starting families. I discovered that it was very difficult to find a partner who wanted to do the same with me.
>
> Although I was in denial for several years, I eventually realized that my depression and anxiety related to my gender identity had not resolved. It was not unusual for me to spend entire weekends in my room crying and entertaining thoughts of suicide.…
>
> I wish I could persuade other boys who wish to become women that the changes they seek are only superficial. Hormones and surgery are unable to reveal an authentic self, and anyone who promises otherwise is, in my opinion, deliberately misleading young people to follow

[44] *See* Littman Survey at 3353-54 (documenting "massive change" over last eight years in awareness about detransitioners).

> a one-way track to a lifetime of medicalization. Although some people may choose to transition, and may even enjoy a higher quality of life, there is no reason why this irreversible decision needs to be made in adolescence. Adults who advocate for adolescent transition do so without understanding what tradeoffs early transition entails, which includes the loss of fertility, the likelihood of sexual dysfunction, and the likelihood of surgical complication inflicted at an early age from elective procedures. Unfortunately, I do understand some of these tradeoffs.

Cohn Decl. at 2-3.

Other have similar stories. Here's Sydney Wright's—an Alabamian who was prescribed testosterone for her gender dysphoria when she was 18:

> My frame of mind at the time, at age 18, was that I believed I might have been "born in the wrong body" and needed to correct it. But I was also unsure, confused, and in need of guidance.…
>
> [After] I stopped taking testosterone and resumed living as a female[,] [m]y physical and mental health have improved, but I continue to suffer adverse effects from the treatments, including a deepened voice and digestive issues that I've been told will be permanent. I also suffer extreme regret for the choices I made as a teenager. I trusted the doctors' advice. They were the experts, who was I as a confused and scared 18 year old not to listen to them?
>
> But telling an 18-year-old girl that mega-doses of testosterone would fix her mental health problems? They didn't even talk to me about other treatment options! No doctor or therapist suggested I give myself time to grow up, or suggested counseling for what was causing my feelings – no doctor or therapist told me most young people outgrow their feelings of wanting to be the opposite sex. The only advice I got was to take mega-doses of testosterone.

Wright Decl. ¶¶ 11, 20-22.

And KathyGrace Duncan's, who transitioned at age 19 and detransitioned 11 years later:

> After 11 years passing as a man and living what I thought was a relatively "happy" and stable live (which included having a number of girlfriends), I realized that I was living a lie built upon years of repressed pain and abuse. Hormones and surgery had not helped me resolved underlying issues of rejection, abuse, and sexual assault. I came to understand that my desire to live as a man was a symptom of deeper unmet needs.

Duncan Decl. ¶ 9.

And Carol Frietas's, who transitioned as an adult and later detransitioned after finally getting the mental health care she needed from the beginning:

> I went to Planned Parenthood for testosterone and was given it right away, with no information. I was not given any information on uterine atrophy, vaginal atrophy, or other effects of testosterone and the staff did not talk about any of my emotional or mental health issues. Four months after starting testosterone, I went to a plastic surgeon for a mastectomy. I needed a letter from a therapist and received one from the therapist who had affirmed me and originally recommended transition. As was true with testosterone, I was not given any information about the procedure. Instead I had a consultation with the surgeon, who said "this is what we are going to do," drew on my chest, took pictures and asked me what I wanted out of the surgery. He said "we'll create a masculine looking chest, you'll look great." …
>
> [After several months,] I went to a psychiatrist to specifically deal with the depression and I was provided with an anti-depressant that really worked. I felt mentally stable and able to address the trauma that led to my transition. Within a month of starting the anti-depressant, I realized that I had not needed to transition. It was the biggest mistake I had ever made. I did not detransition for a year because I couldn't believe that it was so easy, *i.e.*, that anti-depressants alleviated my depression and enabled me think clearly and reason better. This allowed me [to] address my internalized homophobia and childhood abuse through therapeutic means.

Frietas Decl. ¶¶ 9-10, 12-13.

The explosion of detransitioners—like the explosion of gender incongruent youth—is a relatively recent phenomenon. But there have been two recent surveys that tell us a bit about them. Hunter Decl. ¶¶ 60, 117, 137. In one, the author surveyed 237 participants who had detransitioned back to their natal gender. Vandenbussche, *supra*, at 4.[45] Seventy percent of the participants reported that they detransitioned because they "realized that [their] gender dysphoria was related to other issues"; half reported that "[t]ransition did not help with [their] dysphoria"; and over a third reported that their "[d]yspohria resolved itself over time." *Id.* at 6. Only 13% reported that a lack of support from social surroundings contributed to their detransition. *Id.* Most participants reported needing help with "learning to cope with feelings of regret." *Id.* at 12.

In the second, the author surveyed 100 individuals who "experienced gender dysphoria, chose to undergo medical and/or surgical transition and then detransitioned by discontinuing medications, having surgery to reverse the effects of transition, or both." Littman Survey at 3354. The average age the participants first experienced gender dysphoria was age 11. *Id.* at 3358. The reasons the participants gave for wanting to transition included: "wanting to be perceived as the target gender (77.0%); believing that transitioning was their only option to feel better (71.0%); the

[45] The survey included participants who had transitioned both socially and medically (65%) and those who had transitioned only socially (31%). Most of the participants were females in their twenties.

sensation that their body felt wrong the way it was (71.0%); and not wanting to be associated with their natal sex (70.0%). Most participants believed that transitioning would eliminate (65.0%) or decrease (63.0%) their gender dysphoria and that with transitioning they would become their true selves (64.0%)." *Id.* at 3358. Participants were on average 21.9 years old when they started transitioning, and the average time the participants remained transitioned was 3.9 years. *Id.* at 3360.

"The most frequently endorsed reason for detransitioning was that the respondent's personal definition of male and female changed and they became comfortable identifying with their natal sex (60.0%). Other commonly endorsed reasons were concerns about potential medical complications (49.0%); transition did not improve their mental health (42.0%); dissatisfaction with the physical results of transition (40.0%); and discovering that something specific like trauma or a mental health condition caused their gender dysphoria (38.0%)." *Id.* at 3361. "The majority of respondents were dissatisfied with their decision to transition (69.7%) and satisfied with their decision to detransition (84.7%)." *Id.* at 3363. Notably—though understandably—"[o]nly 24.0% of participants had informed the doctor or clinic that facilitated their transitions that they had detransitioned." *Id.* at 3363.

In 2020, courts in the U.K. examined whether a minor could ever consent to taking puberty blockers for gender dysphoria. *See Bell v. Tavistock & Portman Nat'l Health Serv. Found. Tr.* [2020] EWHC (Admin) 3274. In concluding that it is

"highly unlikely that a child aged 13 or under would be competent to give consent to the administration of puberty blockers," and "doubtful that a child aged 14 or 15 could understand and weight the long-term risks and consequences of the administration of puberty blockers," the court made a number of pertinent findings:

- "[T]he use of puberty blockers is not itself a neutral process by which time stands still for the child on PBs, whether physically or psychologically. PBs prevent the child going through puberty in the normal biological process.… Indeed, the statistical correlation between the use of puberty blockers and cross-sex hormones supports the case that it is appropriate to view PBs as a stepping stone to cross-sex hormones." ¶ 137.

- "Although a child may understand the concept of the loss of fertility for example, this is not the same as understanding how this will affect their adult life. A child's attitude to having biological children and their understanding of what this really means, is likely to change between childhood and adulthood." ¶ 139.

- "The difficulty of achieving informed consent in these circumstances is further exacerbated by the lack of evidence as to the efficacy of PBs in treating GD and the long-term outcomes of taking it.… [T]he combination here of lifelong and life changing treatment being given to children, with very limited knowledge of the degree to which it will or will not benefit them, is one that gives significant grounds for concern." ¶ 143.

- "[T]he clinical interventions involve significant, long-term and, in part, potentially irreversible long-term physical, and psychological consequences for young persons. The treatment involved is truly life changing, going as it does to the very heart of an individual's identity. Secondly, at present, it is right to call the treatment experimental or innovative in the sense that there are currently limIted studies/evidence of the efficacy or long-term effects of the treatment." ¶ 148.

The court concluded: "We do not think that the answer to this case is simply to give the child more, and more detailed, information. The issue in our view is that in many cases, however much information the child is given as to long-term consequences, s/he will not be able to weigh up the implications of the treatment to a sufficient degree. There is no age appropriate way to explain to many of these children what losing their fertility or full sexual function may mean to them in later years." ¶ 144.[46] Indeed there isn't.

F. An International Reckoning

As organizations like the American Medical Association and the American Academy of Pediatrics continue to follow the popular zeitgeist when it comes to unproven gender-affirming interventions, other countries are responding to the science and urging caution. Hruz Decl. ¶ 12; Cantor Decl. ¶¶ 128-35.

1. Sweden

In February 2022, following an extensive literature review, Sweden's National Board of Health and Welfare issued a national policy severely restricting the

[46] On appeal, the Court of Appeal ultimately set this decision aside, concluding that the lower court had erred procedurally by weighing the evidence rather than accepting only the evidence presented by the clinic. *See Bell v. Tavistock & Portman NHS Found. Tr.* [2021] EWCA (Civ) 1363, *available at* https://www.judiciary.uk/wp-content/uploads/2021/09/Bell-v-Tavistock-judgment-170921.pdf. But even the higher court agreed that "there are strongly held contrary views" to the WPATH and Endocrine Society's guidelines. *Id.* ¶ 75. It also acknowledged that whether to give children puberty blockers to treat gender dysphoria "raises not only clinical medical issues but also moral and ethical issues, all of which are the subject of intense professional and public debate," and that "[m]edical opinion is far from unanimous about the wisdom of embarking on treatment before adulthood." *Id.* ¶ 3.

administration of puberty blockers and cross-sex hormones to treat gender dysphoric youth. *See* Sweden Policy Statement. The Board concluded: "For adolescents with gender incongruence, the [Board] deems that the risk of puberty suppressing treatment with GnRH-analogues and gender-affirming hormonal treatment currently outweigh the possible benefits, and that the treatments should be offered only in exceptional cases. This judgment is based mainly on three factors: the continued lack of reliable scientific evidence concerning the efficacy and the safety of both treatments, the knowledge that detransition occurs among young adults, and the uncertainty that follows from the yet unexplained increase in the number of care seekers, an increase particularly large among adolescents registered as females at birth." *Id.* at 3. Going forward, puberty blockers and cross-sex hormones may be used to treat gender dysphoric youth in Sweden only in strictly controlled research settings or in very "exceptional cases." *Id.* at 4; *see* Cantor Decl. ¶¶ 132-33.

2. United Kingdom

Some of the events in the UK have already been mentioned—the NICE literature reviews and the whistleblower suit coming from the Tavistock gender clinic. The literature reviews are being used as part of a systematic evaluation of England's pediatric gender identity services led by Dr. Hillary Cass. In February of this year,

Dr. Cass and her team released an interim report.[47] The report noted that the "affirmative care" model is associated with the United States, but had been embraced by many clinicians at the Tavistock clinic.[48] The specialist gender-related service there "ha[d] not been subjected to some of the usual control measures that are typically applied when new or innovative treatments are introduced," and the reporters noted that "[m]any of the challenges and knowledge gaps … are echoed internationally."[49]

Combined with a "rapid change in epidemiology," a dramatic increase in the number of referrals, and patients presenting with "a wide range of psychosocial and mental health needs," the embrace of the "affirmative, non-exploratory approach" led to conflict at the clinic and elsewhere.[50] The report noted a "lack of consensus" about whether the affirmative care model was proper, but that "[p]rimary and secondary care staff … feel under pressure to adopt an unquestioning affirmative approach."[51] Physicians outside the clinic felt similar pressure, with some doctors telling the authors that they were "afraid of the consequences" if they did not bow to the "pressure to take a purely affirmative approach."[52] And the report acknowledged that "disagreement and polarization is heightened when potentially irreversible

[47] *See The Cass Review: Independent Review of Gender Identity Services for Children and Young People: Interim Report* (Feb. 2022), *available at* https://cass.independent-review.uk/publications/interim-report/.
[48] *Id.* at 14-15, 78.
[49] *Id.* at 15.
[50] *Id.* at 14-17.
[51] *Id.* at 17.
[52] *Id.* at 48.

treatments are given to children and young people, when the evidence base underlying the treatments is inconclusive, and when there is uncertainty about whether, for any particular child or young person, medical intervention is the best way of resolving gender-related distress."[53] The report did not make a final recommendation on the use of puberty blockers and cross-sex hormones in minors "due to gaps in the evidence base."[54] *See* Cantor Decl. ¶¶ 128-29.

3. Finland

In June 2020, Finland's Council for Choices in Healthcare suggested changes to its treatment protocols. Cantor Decl. ¶¶ 130-31; Finland Policy Statement. Though allowing for some hormonal interventions under certain conditions, the Council lamented the lack of evidence in the area and urged caution in light of the severe risks associated with medical intervention:

- "Potential risks of GnRH therapy include disruption in bone mineralization and the as yet unknown effects on the central nervous system. In trans girls, early pubertal suppression inhibits penile growth, requiring the use of alternative sources of tissue grafts for a potential future vaginoplasty. *The effect of pubertal suppression and cross-sex hormones on fertility is not yet known*." *Id.* (emphasis added).

- "In cases of children and adolescents, ethical issues are concerned with the natural process of adolescent identity development, and the possibility that medical interventions may interfere with this process. It has been suggested that hormone therapy (e.g., pubertal suppression) alters the course of gender identity development; i.e., it may consolidate a gender identity that would have otherwise changed in some of the treated adolescents. *The reliability of*

[53] *Id.* at 13, 28.
[54] *Id.* at 15.

the existing studies with no control groups is highly uncertain, and because of this uncertainty, no decisions should be made that can permanently alter a still-maturing minor's mental and physical development." *Id.* (emphasis added).

- "Professionals, for their part, consider it important to ensure that irreversible interventions, which may also have significant adverse effects, both physical and mental, are only performed on individuals who are able to understand the permanence of the changes and the potential for harm, and who are unlikely to regret such interventions. *It is not known how the hormonal suppression of puberty affects young people's judgement and decision-making.*" *Id.* (emphasis added).

The Council thus concluded: "Information about the potential harms of hormone therapies is accumulating slowly and is not systematically reported. It is critical to obtain information on the benefits and risks of these treatments in rigorous research settings." *Id.*

4. Australia and New Zealand

In August 2021, the Royal Australian & New Zealand College of Psychiatrists issued a position statement recognizing the "paucity of quality evidence on the outcomes of those presenting with Gender Dysphoria" and the "need for better evidence in relation to outcomes for children and young people." *See* Royal Australian & New Zealand College of Psychiatrists Statement. It urged caution and humility:

- "There are polarized views and mixed evidence regarding treatment options for people presenting with gender identity concerns, especially children and young people." *Id.*

- Psychiatrists should "be aware there are multiple perspectives and views," and while "[t]here is some evidence to suggest positive psychosocial outcomes for those who are supported in their

> gender identity," "evidence and professional opinion is divided as to whether an affirmative approach should be taken in relation to treatment of transgender children or whether other approaches are more appropriate." *Id.*

5. France

On February 25, 2022, France's Académie Nationale de Médecine issued a similar statement urging "great medical caution" when treating gender dysphoric youth "given the vulnerability, particularly psychological, of this population and the many undesirable effects, and even serious complications, that some of the available therapies can cause." *See* France Policy Statement. The Académie was particularly concerned about the unexplained rise in gender incongruent youth, noting that, according to a recent study of a high schools in Pittsburgh, "10% of students declared themselves to be transgender or non-binary or of uncertain gender." *Id.* "Whatever the mechanisms involved," the Académie observed, the phenomenon was a "primarily social problem" given that the "epidemic-like phenomenon results in the appearance of cases or even clusters in the immediate surroundings." *Id.*

Citing the rise in cases, the Académie also recognized that "the risk of overdiagnosis is real, as shown by the increasing number of transgender young adults wishing to 'detransition.'" *Id.* It thus lamented that "[n]o genetic predisposition has been found" and that "there is no test to distinguish a 'structural' gender dysphoria from transient dysphoria in adolescence." *Id.* While the Académie did not ban the administration of puberty blockers or cross-sex hormones, it concluded that "the

greatest reserve is required in their use, given the side effects such as impact on growth, bone fragility, risk of sterility, emotional and intellectual consequences and, for girls, symptoms reminiscent of menopause." *Id.*

G. The Alabama Vulnerable Child Compassion and Protection Act

On April 8, 2022, Alabama added its voice to the chorus and enacted the Alabama Vulnerable Child Compassion and Protection Act. As can be seen, the legislative findings are fully supported by the literature and accord with a growing international consensus:

> The Legislature finds and declares the following:
>
> (1) The sex of a person is the biological state of being female or male, based on sex organs, chromosomes, and endogenous hormone profiles, and is genetically encoded into a person at the moment of conception, and it cannot be changed.
>
> (2) Some individuals, including minors, may experience discordance between their sex and their internal sense of identity, and individuals who experience severe psychological distress as a result of this discordance may be diagnosed with gender dysphoria.
>
> (3) The cause of the individual's impression of discordance between sex and identity is unknown, and the diagnosis is based exclusively on the individual's self-report of feelings and beliefs.
>
> (4) This internal sense of discordance is not permanent or fixed, but to the contrary, numerous studies have shown that a substantial majority of children who experience discordance between their sex and identity will outgrow the discordance once they go through puberty and will eventually have an identity that aligns with their sex.
>
> (5) As a result, taking a wait-and-see approach to children who reveal signs of gender nonconformity results in a large majority of those

children resolving to an identity congruent with their sex by late adolescence.

(6) Some in the medical community are aggressively pushing for interventions on minors that medically alter the child's hormonal balance and remove healthy external and internal sex organs when the child expresses a desire to appear as a sex different from his or her own.

(7) This course of treatment for minors commonly begins with encouraging and assisting the child to socially transition to dressing and presenting as the opposite sex. In the case of prepubertal children, as puberty begins, doctors then administer long-acting GnRH agonist (puberty blockers) that suppress the pubertal development of the child. This use of puberty blockers for gender nonconforming children is experimental and not FDA-approved.

(8) After puberty blockade, the child is later administered "cross-sex" hormonal treatments that induce the development of secondary sex characteristics of the other sex, such as causing the development of breasts and wider hips in male children taking estrogen and greater muscle bass, bone density, body hair, and a deeper voice in female children taking testosterone. Some children are administered these hormones independent of any prior pubertal blockade.

(9) The final phase of treatment is for the individual to undergo cosmetic and other surgical procedures, often to create an appearance similar to that of the opposite sex. These surgical procedures may include a mastectomy to remove a female adolescent's breasts and "bottom surgery" that removes a minor's health[y] reproductive organs and creates an artificial form aiming to approximate the appearance of the genitals of the opposite sex.

(10) For minors who are placed on puberty blockers that inhibit their bodies from experiencing the natural process of sexual development, the overwhelming majority will continue down a path toward cross-sex hormones and cosmetic surgery.

(11) This unproven, poorly studied series of interventions results in numerous harmful effects for minors, as well as risks of effects simply unknown due to the new and experimental nature of these interventions.

(12) Among the known harms from puberty blockers is diminished bone density; the full effect of puberty blockers on brain development and cognition are yet unknown, though reason for concern is now present. There is no research on the long-term risks to minors of persistent exposure to puberty blockers. With the administration of cross-sex hormones comes increased risks of cardiovascular disease, thromboembolic stroke, asthma, COPD, and cancer.

(13) Puberty blockers prevent gonadal maturation and thus render patients taking these drugs infertile. Introducing cross-sex hormones to children with immature gonads as a direct result of pubertal blockade is expected to cause irreversible sterility. Sterilization is also permanent for those who undergo surgery to remove reproductive organs, and such persons are likely to suffer through a lifetime of complications from the surgery, infections, and other difficulties requiring yet more medical intervention.

(14) Several studies demonstrate that hormonal and surgical interventions often do not resolve the underlying psychological issues affecting the individual. For example, individuals who undergo cross-sex cosmetic surgical procedures have been found to suffer from elevated mortality rates higher than the general population. They experience significantly higher rates of substance abuse, depression, and psychiatric hospitalizations.

(15) Minors, and often their parents, are unable to comprehend and fully appreciate the risk and life implications, including permanent sterility, that result from the use of puberty blockers. cross-sex hormones, and surgical procedures.

(16) For these reasons, the decision to pursue a course of hormonal and surgical interventions to address a discordance between the individual's sex and sense of identity should not be presented to or determined for minors who are incapable of comprehending the negative implications and life-course difficulties attending to these interventions.

Act § 2.

Given the medical uncertainties and the risks of severe harm from the medical interventions, the Legislature chose to prohibit the administration of certain treatments for minors:

> [N]o person shall engage in or cause any of the following practices to be performed upon a minor if the practice is performed for the purpose of attempting to alter the appearance of or affirm the minor's perception of his or her gender or sex, if that appearance or perception is inconsistent with the minor's [biological sex]:
>
> (1) Prescribing or administering puberty blocking medication to stop or delay normal puberty.
>
> (2) Prescribing or administering supraphysiologic doses of testosterone or other androgens to females.
>
> (3) Prescribing or administering supraphysiologic doses of estrogen to males.
>
> (4) Performing surgeries that sterilize, including castration, vasectomy, hysterectomy, oophorectomy, orchiectomy, and penectomy.
>
> (5) Performing surgeries that artificially construct tissue with the appearance of genitalia that differs from the individual's sex, including metoidioplasty, phalloplasty, and vaginoplasty.
>
> (6) Removing any healthy or non-diseased body part or tissue, except for a male circumcision.

Act § 4. A violation is a Class C felony. *Id.*

There are some exceptions: the prohibition does not apply "to a procedure undertaken to treat a minor born with a medically verifiable disorder of sex development," including an individual both with irresolvable ambiguous external sex characteristics and an individual who has been diagnosed with a "disorder of sexual

development." *Id.* And the Legislature expressly noted that, except as specifically provided in §4, "nothing in this act shall be construed as limiting or preventing psychologists, psychological technicians, and master's level licensed mental health professionals from rendering the services for which they are qualified." *Id.* § 6.

Governor Ivey signed the bill into law on April 8, 2022. The Act is set to become effective on May 8, 2022. Plaintiffs brought this (latest) lawsuit on April 19, Doc. 1, and sought emergency injunctive relief on April 21, Doc. 7. The United States belatedly moved to intervene on April 29, Doc. 58, filing a proposed preliminary injunction motion, brief, and expert report late the business day before this response is due, Doc. 62. Particularly because of the federal government's dilatory conduct, the State reserves the right to file a separate opposition to the proposed brief should intervention be granted, after its own experts have the opportunity to review and respond to the government's new papers. Nonetheless, recognizing the time-sensitive issues before the Court, the State has offered responses here to the government's primary points where possible.

LEGAL STANDARD

"A district court may grant injunctive relief only if the moving party shows that: (1) it has a substantial likelihood of success on the merits; (2) irreparable injury will be suffered unless the injunction issues; (3) the threatened injury to the movant outweighs whatever damage the proposed injunction may cause the opposing party;

and (4) if issued, the injunction would not be adverse to the public interest." *Siegel v. LePore*, 234 F.3d 1163, 1176 (11th Cir. 2000) (en banc). A preliminary injunction or a temporary restraining order "is an extraordinary and drastic remedy that should not be granted unless the movant *clearly* carries its burden of persuasion on each of these prerequisites." *Suntrust Bank v. Houghton Mifflin Co.*, 252 F.3d 1165, 1166 (11th Cir. 2001) (emphasis added). Accordingly, "[f]ailure to show any of the four factors is fatal." *Am. C.L. Union of Fla., Inc. v. Miami-Dade Cnty. Sch. Bd.*, 557 F.3d 1177, 1198 (11th Cir. 2009). "Because a TRO or preliminary injunction is an extraordinary and drastic remedy, its grant is the exception rather than the rule." *Cheng Ke Chen v. Holder*, 783 F. Supp. 2d 1183, 1186 (N.D. Ala. 2011) (cleaned up) (quoting *United States v. Lambert*, 695 F.2d 536, 539 (11th Cir. 1983)).

ARGUMENT

This case is about whether Alabama has the power to regulate risky, experimental, unproven medical interventions on children. The answer is clearly yes. Accordingly, Plaintiffs have not clearly established any of the prerequisites to obtaining the extraordinary remedy of a preliminary injunction against enforcement of the Act.

First, their claims are unlikely to succeed. "[T]he Constitution 'principally entrusts the safety and the health of the people to the politically accountable officials of the States.'" *Andino v. Middleton*, 141 S. Ct. 9, 10 (2020) (Kavanaugh, J., concurring) (quoting *South Bay United Pentecostal Church v. Newsom*, 140 S. Ct. 1613,

1613-1614 (2020) (Roberts, C.J., concurring)). "When those officials undertake to act in areas fraught with medical and scientific uncertainties, their latitude must be especially broad." *Id.* (cleaned up). A State legislature's scientific judgment "ordinarily should not be subject to second-guessing by an unelected federal judiciary, which lacks the background, competence, and expertise to assess public health and is not accountable to the people." *Id.* (cleaned up).

All of Plaintiffs' varied legal theories come down to one demand: for this Court to elevate Plaintiffs' ideologically driven reading of highly contested scientific evidence over the findings and policy views of the Alabama Legislature. Nothing in the Constitution or federal law sanctions this demand.

Plaintiffs' Equal Protection claim fails at the outset because the Act regulates certain experimental medical procedures and does not discriminate based on sex or gender identity. Neither boys nor girls may be subjected to these experimental procedures. The United States responds with the biology-defying contention that there is no meaningful difference between the sexes. In its view, giving a boy with a testosterone deficiency enough testosterone to bring him to a natural level is the same as providing a girl testosterone that raises her to unnatural (and unhealthy) levels, and thus equality demands that the treatment be made available to both. That facile logic fails, however, because the biological differences between males and females mean that the former and latter interventions are different treatments altogether. To

borrow from another context, implanting a fertilized egg in a woman can be a treatment for infertility; doing the same to a man is something very different indeed.

Nor is there an identity between the Act's regulations and transgender status. Many who identify as transgender do not seek these experimental procedures, and some who are not actually transgender *do* seek them.

In any event, the Act would easily pass even heightened scrutiny. The State's interest in protecting children is among the most compelling government interests. And a State has "wide discretion to pass legislation in areas where there is medical and scientific uncertainty." *Gonzales v. Carhart*, 550 U.S. 124, 163 (2007). As shown above, this area is defined by uncertainty. After weighing the demonstrated risks and unproven benefits, the Legislature drew a careful regulation that prevents experimental procedures that have (1) irreversible consequences, and (2) no discernible mental-health benefits. The Act permits proven treatments for gender dysphoria that do not inflict long-term harm. Both the Act's findings and the evidence discussed above justify the Act's closely drawn proscriptions.

Plaintiffs' remaining legal theories are even more tenuous. Though they invoke general parental rights, there is no substantive due process right for a parent to obtain experimental medical procedures for gender-transition purposes. Indeed, all federal courts of appeals to address the issue have held that no substantive due

process right exists to access experimental medical treatments. Plaintiffs' claimed right—a derivative right of a parent to obtain such treatments—necessarily fails.

Plaintiffs' void for vagueness argument rests on the proposition that the term "engage in or cause"—especially "cause"—cannot be understood or consistently applied. If basic causation requirements are void for vagueness, most of American law is void. Similar formulations litter the law, and Plaintiffs cite no court holding the term to be vague. To the contrary, courts find that causation requirements *eliminate* undue vagueness. And that is especially true here, given that Alabama law specifically articulates the "modified but-for" causation test that applies (and imposes a default *mens rea* requirement). *See* Ala. Code §§ 13A-2-5(a), 13A-2-4(b). Alabama law also speaks to Plaintiffs' other hypotheticals, which either misunderstand the causation requirement or are simply consequences of the law that Plaintiffs do not like. That does not make the law vague.

Moving even farther afield, the Act proscribes only certain conduct, and the First Amendment does not protect criminal conduct. Simply because conduct might be carried out through speech—say, hiring a hitman, or writing a prescription—does not give it First Amendment protection. Any suggestion that the Act prevents seeking medical advice misapprehends the Act's terms and settled causation rules.

Nor is the Act preempted by the ACA. The Act does not discriminate based on sex, so Section 1557 is irrelevant. And regardless, the ACA contains an express

savings clause preserving state regulation, and federal funding conditions do not confer on recipients a *right* to that funding with which state regulation could interfere. In any event, the Private Plaintiffs lack a cause of action to bring this claim against Defendants, and the federal government does not press this claim.

Finally, the other injunction factors weigh against preliminary relief. Plaintiffs' earlier judge-shopping alone forecloses their demand for equitable relief, for not only does their conduct cast the appearance of impropriety on our judicial system, but it significantly delayed this litigation. Plaintiffs cannot now claim an irreparable harm when their actions show that they were more interested in judge-shopping than in obtaining a timely adjudication. And Plaintiffs have not shown that continuing to subject minors to experimental procedures would help rather than harm them. Minors will continue to have access to necessary medical care, including treatments for tapering off their chemical gender transitions and accepted treatments for gender dysphoria.

Enjoining the Act would lead to some untold number of Alabama children being subjected to experimental procedures that could forever destroy their abilities to procreate, enjoy intimate relations, and care for children of their own. The public interest is to protect the children of this State from unproven, ideologically driven procedures. The Court should deny Plaintiffs' and the federal government's motions.

I. Plaintiffs Have Not Shown That Their Equal Protection Claims Are Likely To Succeed.

Plaintiffs' Equal Protection claim will fail. The most obvious reason it will fail is that the Act does not discriminate based on sex or gender identity. No male or female can be subjected to the regulated experimental procedures. Nor are these discrete and defined procedures a proxy for transgender status: many transgender youth do not seek them, and youth who are *not* actually transgender have been subjected to them. Regardless, transgender status is not a suspect or quasi-suspect classification, particularly in the context of medical treatments that are tied to inherent biological realities. Absent a suspect classification, the Act need only pass rational basis review, and its classifications based on age and procedures advance the State's compelling interest in protecting children from experimental treatments. Even if heightened scrutiny applied, the State's interest is of the utmost importance, and the Act is narrowly tailored to protect the children of Alabama from unproven procedures with no demonstrated benefits and irreversible harms.

A. The Vulnerable Child Compassion and Protection Act is Subject Only to Rational-Basis Review.

On its face, the Act draws distinctions on two bases: age and procedure. Neither is among the suspect classifications that courts have identified for Equal Protection purposes. *See Gregory v. Ashcroft*, 501 U.S. 452, 470 (1991); *Clark v. Jeter*,

486 U.S. 456, 461 (1988). Plaintiffs deceptively edit the Act to make it appear that its restrictions are based on sex or transgender status. Br., Doc. 8 at 30. They are not.

1. The Act Does Not Discriminate Based on Sex or Transgender Status.

First, the Act does not discriminate based on sex. No minor, regardless of sex, can obtain the covered experimental procedures. The Act therefore draws no "gender-based classification[]" that would "warrant heightened scrutiny." *United States v. Virginia,* 518 U.S. 515, 555 (1996) (quotation marks omitted). Plaintiffs do not appear to dispute that point.

Instead, Plaintiffs argue that "[b]y discriminating against transgender people," the Act "discriminates based on sex." Br., Doc. 8 at 31. But the Act does not discriminate based on transgender status. Under the Act, two categories exist: The first category is minors who seek certain experimental procedures "for the purpose of attempting to alter the appearance of or affirm the minor's perception of his or her gender or sex, if that appearance or perception is inconsistent with the minor's sex." Act § 4(a). The second category is all other minors.

Importantly, transgender individuals may be in either category. As even Plaintiffs and their experts recognize, there are both transgender people and non-transgender people who choose not to undergo experimental gender transition procedures. *See, e.g.*, Compl., Doc. 1 ¶ 34; Rosenthal Decl. ¶¶ 32-33, 46; *see also* Doe *2 v. Shanahan*, 917 F.3d 694, 722 (D.C. Cir. 2019) (Williams, J, concurring in the

result) ("[T]he transgender community is not a monolith in which every person wants to take steps necessary to live in accord with his or her preferred gender (rather than his or her biological sex)."). The DSM-5 recognizes that only *some* transgender people suffer from gender dysphoria because not all transgender people experience clinical levels of distress caused by their gender incongruence. DSM-5 at 452-53. And according to WPATH, some individuals who suffer from gender dysphoria "do not feel the need to feminize or masculinize their body" and find that "changes in gender role and expression are sufficient to alleviate gender dysphoria." WPATH Guidelines at 8-9. Accordingly, the Act's regulation of experimental procedures is not a proxy for transgender status.

This conclusion is bolstered by the fact that non-transgender individuals may be in either category, too. As noted above, many—perhaps most—children that may seek the experimental procedures will likely turn out *not* to be transgender. Indeed, in a field where so much is unknown, that fact is well established: the vast majority of youth suffering from gender dysphoria will not identify as transgender as adults. *See* Cantor Decl. ¶ 36; WPATH Standards at 11; Endocrine Society Guidelines at 3879; DSM-5 at 455. And because there is no way to accurately predict whose dysphoria will persist and whose will not (another fact well established by the literature), there is no way to separate the "true" transgender children from those whose transgender identification is simply passing. Cantor Decl. ¶ 42 (noting that, at best,

clinicians can only distinguish "unlikely from even less likely to transition"); Endocrine Society Guidelines at 3876. Thus, in all likelihood, *more* "truly" non-transgender children than transgender children seek the medical interventions, unaware that their gender dysphoria will resolve over time if they would but let it. *Cf.* U.S. Br., Doc. 62-1 at 12 (asserting that "[a] person's gender identity is innate"). And given that "transgender" refers merely to "[a] subset of gender-diverse youth," AAP Statement at 2, persons other than those who identify as transgender may seek the experimental procedures, too. None of that is relevant to the Act, which regulates procedures and is not based on transgender status.

Because the two categories created by the Act both include transgender and non-transgender minors, the Act does not discriminate based on transgender status. This understanding of how equal protection principles apply to the Act is compelled by precedent. The Supreme Court has repeatedly rejected the uneven-impact analysis on which Plaintiffs' transgender-discrimination-by-proxy theory rests. *See Pers. Adm'r of Mass. v. Feeney,* 442 U.S. 256, 271-72 (1979) ("[M]any [laws] affect certain groups unevenly, even though the law itself treats them no differently from all other members of the class described by the law.").

Take the Supreme Court's decision in *Geduldig v. Aiello*, 417 U.S. 484 (1974). There, the Court held that a state insurance policy that excluded coverage for pregnancies did not classify on the basis of sex. *Id.* at 495-97. It explained that

the classification at issue created two groups: pregnant and nonpregnant people. *Id.* at 496 n.20. Although "the first group is exclusively female," the Court explained, "the second includes members of both sexes," which revealed a "lack of identity" between pregnancy and sex. *Id.*; *see also Gen. Elec. Co. v. Gilbert*, 429 U.S. 125, 136 (1976) ("[A]n exclusion of pregnancy from a disability-benefits plan providing general coverage is not a gender-based discrimination at all.").

The Court has applied the same analysis in the context of abortion regulations, explaining that "'[w]omen seeking abortion' is not a qualifying class." *Bray v. Alexandria Women's Health Clinic*, 506 U.S. 263, 269 (1993). The Court rejected the proposition "that since voluntary abortion is an activity engaged in only by women, to disfavor it is *ipso facto* to discriminate invidiously against women as a class." *Id.* at 271. The Court emphasized that "the characteristic that formed the basis of the targeting here was not womanhood, but the seeking of abortion." *Id.* at 273.

Likewise, the Act protects against certain experimental procedures, regardless of who is subjected to them. And just as some women were in the nonpregnant class in *Geduldig* and some women did not seek abortions in *Bray*, some transgender minors do not seek these experimental procedures. There is thus a "lack of identity" between the Act's medical-procedure distinction and transgender status. *Adams v. Sch. Bd. of St. Johns Cnty.,* 3 F.4th 1299, 1331-32 (11th Cir. 2021) (Pryor, C.J., dissenting) (applying *Geduldig* to law that "does not facially classify on the basis of

transgender status"), *vacated pending reh'g en banc,* 9 F.4th 1369.[55] Contrary to Plaintiffs' extraordinary claim, seeking experimental procedures does not "define" being transgender. Br., Doc. 8 at 23; *see id.* (comparing children seeking experimental procedures to Jews wearing yarmulkes); U.S. Br., Doc. 62-1 at 23 n.12 (similar). Plus, the identity between regulated practice and class is even more detached here because not all children seeking these interventions are transgender. So it makes even less sense to say that this Act discriminates based on transgender status than it would to say that the laws in *Geduldig* and *Bray* discriminated based on sex. The Act does not discriminate based on sex or transgender status.

2. Even Assuming a Distinction Based on Transgender Status, Rational Basis Review Still Applies.

Even if the Act *did* discriminate based on transgender status, it would not be subject to heightened scrutiny. That is so for two reasons. First, any such discrimination would not be equivalent to discrimination based on sex, because the Act focuses on meaningful and unavoidable biological differences between sexes. Second, transgender status is not a quasi-suspect classification.

a. The Act is Based on Biological Differences.

According to Plaintiffs, "[b]oth the Supreme Court and the Eleventh Circuit have held that discrimination because a person is transgender is based on sex." Br.,

[55] En banc argument was held in this case on February 22, 2022, and the decision is pending.

Doc. 8 at 24 (citing *Bostock* and *Brumby*); U.S. Br., Doc. 62-1 at 11 (similar). But the cited decisions are more limited in scope than Plaintiffs suggest, and they do not govern situations where the law's classifications are tied to actual biological differences between the sexes. "The only question" in *Bostock* was "whether an employer who fires someone simply for being … transgender has discharged or otherwise discriminated against that individual 'because of such individual's sex'" under "Title VII." *Bostock v. Clayton Cnty., Georgia*, 140 S. Ct. 1731, 1753 (2020). *Bostock* did not resolve the construction of any other statute, much less the Equal Protection Clause, and it expressly reserved "[w]hether other policies and practices might or might not qualify as unlawful discrimination." *Id.*

Bostock focused on Title VII, reading that statute's core "message" to be that "[a]n individual's homosexuality or transgender status is not relevant to employment decisions." *Id.* at 1741. The Court said that "[t]o 'discriminate against' a person" "mean[s] treating that individual worse than others who are *similarly situated*." *Id.* at 1740 (emphasis added); *see also Cleburne v. Cleburne Living Ctr.*, 473 U.S. 432, 439 (1985) ("The Equal Protection Clause … is essentially a direction that all persons similarly situated should be treated alike."). And for employment purposes, employees are similarly situated to each other, regardless of "sex," "homosexuality," or "transgender status." *Bostock*, 140 S. Ct. at 1741. In this context, the Court considered gender identity to be inherently linked to sex; the core of *Bostock*'s reasoning

on this issue was that an employer that "penalizes a person identified as male at birth for traits or actions that it tolerates in an employee identified as female at birth" discriminates based on sex under Title VII. *Id.* at 1741. The Eleventh Circuit's decision in *Brumby* similarly subjected to intermediate scrutiny governmental employment decisions "based upon gender stereotypes," stating that "we are beyond the day when an employer could evaluate employees by assuming or insisting that they matched the stereotypes associated with their group." *Glenn v. Brumby*, 663 F.3d 1312, 1316, 1320 (11th Cir. 2011) (cleaned up).

But that reasoning does not translate to the medical context when males and females are *not* similarly situated. Take for example in vitro fertilization. A fertility clinic would not discriminate on the basis of sex by deciding to implant fertilized eggs only in females. There would no inequality in that policy because implanting the egg in a male would be a different procedure. The medical procedures at issue here are likewise unavoidably tied to meaningful biological differences in the sexes. Ramping up a young boy's estrogen levels to that of a healthy girl is not the same treatment as ensuring a young girl has estrogen levels within a normal range. To put it in *Bostock*'s terms, it is *not* true that but for a child's sex could he or she be "prescribe[ed] or administer[ed] supraphysiologic doses" of a sex hormone "for the purpose of attempting to alter the appearance of or affirm the minor's perception of his or her gender or sex, if that appearance of perception is inconsistent with the minor's

sex as defined in this act." While a boy may be prescribed testosterone to treat his delayed puberty, the prescription is not "for the purpose of attempting to alter the appearance of or affirm the minor's perception of his or her gender or sex." As discussed above, the two treatments are not at all the same—because biological males are not the same as biological females.[56]

Take another example: a male who cannot be subject to castration for the purpose of transitioning gender. *Bostock* "directs us to change [the person's sex] and see if the outcome changes." 140 S. Ct. at 1739. That direction might make sense in the employment context, where an individual's "sex is not relevant to the selection, evaluation, or compensation of employees." *Id.* at 1741 (cleaned up). But it makes no sense in medical contexts where sex makes all the difference. To return to the example, a male who can't be castrated simply cannot be compared to a female, because a female could *never* be castrated.

[56] For this reason, the federal government's citation-less assertion that the Act permits "cisgender minors" to "obtain[] the same forms of care" (Br., Doc. 62-1 at 22) is wrong. Even putting aside that the Act bars persons who may not be transgender from obtaining these procedures, the treatment for a condition like precocious puberty is not the "same" as an experimental procedure used for gender dysphoria, even if similar medications might be used. Nor are biological realities "sex stereotype[s]." U.S. Br., Doc. 62-1 at 22. The United States is unable to articulate what "sex stereotype" it thinks is at play here, other than the red herring that "an individual's gender identity should match the sex that individual was assigned at birth." *Id.* at 23. The Act does not regulate an "individual's gender identity," and it expressly protects (proven and safe) treatments for gender dysphoria. What the Act regulates are unproven treatments that are tied to biological facts—facts that the United States does not appear to dispute. To say that the relationship of genitalia to sex is merely a harmful "stereotype" is like saying that having a spinal column is merely "stereotypical" of vertebrates.

Laws premised on such biological differences are "consistent with the constitutional guarantee of equal protection." *Nguyen v. I.N.S.*, 533 U.S. 53, 59 (2001). In *Nguyen*, for example, the Court confronted a law that "impose[d] different requirements for the child's acquisition of citizenship depending upon whether the citizen parent is the mother or the father." *Id.* at 56-57. The Court upheld the law, emphasizing that "[f]athers and mothers are not similarly situated with regard to the proof of biological parenthood." *Id.* at 63. The Court explained that "gender specific terms can mark a permissible distinction." *Id.* at 64. "The equal protection question is whether the distinction is lawful," and where "the use of gender specific terms takes into account a biological difference between the parents," "[t]he differential treatment is inherent in a sensible statutory scheme." *Id.* Thus, the Court concluded that "[t]he imposition of a different set of rules for making that legal determination with respect to fathers and mothers is neither surprising nor troublesome from a constitutional perspective." *Id.* at 63. "The difference between men and women in relation to the birth process is a real one, and the principle of equal protection does not forbid Congress to address the problem at hand in a manner specific to each gender." *Id.* at 73. "Mechanistic classification of all our differences as stereotypes would operate to obscure those misconceptions and prejudices that are real." *Id.*

Though the Court in *Nguyen* applied heightened scrutiny, its teachings are relevant here to show that where there are biological differences between males and

females, *Bostock*'s equivalence between transgender distinctions and sex discrimination does not hold. While "[a]n individual's homosexuality or transgender status is not relevant to employment decisions," *Bostock*, 140 S. Ct. at 1741, an individual's sex is often critically relevant to medical treatments. Screening women for ovarian cancer while screening men for testicular cancer is not discrimination.

Thus, the *Bostock* syllogism for employees—where biological differences did not matter—does not apply here. The Act properly recognizes and accounts for the scientific reality that "[t]he two sexes are not fungible." *Virginia*, 518 U.S. at 533. To the extent that the range of experimental medical procedures regulated by the Act discriminate in any way, it is only "as a matter of biological inevitability." *Nguyen*, 533 U.S. at 65. "To fail to acknowledge even our most basic biological differences … risks making the guarantee of equal protection superficial, and so disserving it." *Id.* at 73. "The distinction embodied in the statutory scheme here at issue is not marked by misconception and prejudice, nor does it show disrespect for either class. "The difference between" girls and boys "is a real one, and the principle of equal protection does not forbid [a State] to address the problem at hand in a manner specific to each gender." *Id.*; *see also Virginia*, 518 U.S. at 533 ("The heightened review standard our precedent establishes does not make sex a proscribed classification…. Physical differences between men and women … are enduring"); *Miller v. Albright*,

523 U.S. 420, 445 (1998) (plurality opinion) ("The biological differences between single men and single women provide a relevant basis for differing rules….") .

The experimental procedures at issue here do not rely on an impermissible classification. Puberty blockers are FDA-approved to treat, for example, precocious puberty, where they temporarily delay an abnormally early puberty with the goal of allowing a child to begin puberty normally. Laidlaw Decl. at 13. Gender-transition practitioners, by contrast, use puberty blockers to indefinitely stop natural puberty, a use for which they are not FDA-approved. *Id.* Same for hormone therapies that might be approved to initiate delayed puberty but not to disrupt normal development and transition genders. These are not the same procedures, any more than raising abnormally low testosterone levels is the same as providing the hormone to a Tour de France cyclist seeking a yellow jersey. Different purposes make these different procedures.

b. Transgender Status is Not a Suspect or Quasi-Suspect Classification.

Second, transgender status is neither a suspect nor quasi-suspect classification. Receiving suspect-classification status is a high hurdle, requiring a clear showing that the group (1) has "been subjected to discrimination" "[a]s a historical matter," (2) exhibits "immutable" "characteristics that define them as a discrete group," and (3) is "politically powerless." *Lyng v. Castillo*, 477 U.S. 635, 638 (1986). These

factors must be analyzed "closely," with a "definitive description of the classifying facts." *San Antonio Indep. School Dist. v. Rodriguez*, 411 U.S. 193, 19 (1973).

Nearly 40 years ago, the Supreme Court held that "mental retardation," though often spurring discrimination, was not a "quasi-suspect classification calling for a more exacting standard of judicial review." *Cleburne*, 473 U.S. at 442. The Court so held despite evidence that mentally handicapped individuals had been "subjected to … grotesque mistreatment," including, among other things, exclusion from public schools and compulsory sterilization in at least 32 states. *Cleburne Living Ctr. v. Cleburne*, 726 F.2d 191, 197 (5th Cir. 1984), *aff'd in part, vacated in part sub nom. Cleburne*, 473 U.S. 432; *see also Romeo v. Youngberg*, 644 F.2d 147, 163 (3d Cir. 1980) ("The mentally retarded … [could] not vote in most states and, with few community ties, sponsors or friends, have minimal impact on the political process."), *vacated and remanded on other grounds*, 457 U.S. 307 (1982).

Yet Plaintiffs urge this Court to identify a new suspect classification for transgender individuals without identifying any evidence at all. Instead of providing evidence (or even substantive factual allegations) to support the claim that "transgender status" "meets the criteria for suspect classification," they simply assert that "transgender people have suffered a history of discrimination," that "being transgender" is "immutable," and that "transgender people lack the political power to achieve full equality." Br., Doc. 8 at 32. This is just a restatement of the legal

framework for determining suspect classification. Neither the Eleventh Circuit nor the Supreme Court has ever treated transgender individuals as a suspect class.[57] Plaintiffs offer no reason to break new ground here.

First, Plaintiffs have not established that "transgender people have suffered a history of discrimination." Br., Doc. 8 at 32. For this factor, it is not enough that "the treatment of [transgender individuals] has not been wholly free of discrimination." *Massachusetts Bd. of Ret. v. Murgia*, 427 U.S. 307, 313 (1976). Instead, Plaintiffs must *show* that transgender individuals "have experienced a 'history of purposeful unequal treatment' or been subjected to unique disabilities on the basis of stereotyped characteristics not truly indicative of their abilities." *Id.* Plaintiffs have not attempted to meet this burden. *Cf. Rodriguez*, 411 U.S. at 26 (explaining that plaintiffs must provide "proof … to support their allegations" on this issue).[58]

Second, transgender status is not "an immutable characteristic determined solely by the accident of birth." *Frontiero v. Richardson*, 411 U.S. 677, 686 (1973). The recent explosion in individuals who identify as transgender makes this clear.

[57] Plaintiffs' reliance on *Glenn*, 663 F.3d 1312, is misplaced. There, "[t]he question" was "whether discriminating against someone on the basis of his or her gender non-conformity constitutes sex-based discrimination under the Equal Protection Clause." *Id.* at 1316. As explained above, the Act applies equally to all and discriminates against no one. And regardless, the *Glenn* inquiry is distinct from whether transgender individuals constitute a "suspect class" in the first instance.

[58] The United States, meanwhile, relies only on self-reports involving, for example, respondents who said they had "one or more negative experiences" "in K-12." Br., Doc. 62-1 at 25 n.15.

Likewise, that many individuals who identify as transgender later do *not* identify as transgender (*see supra* at pp. 16-20) proves the point.

It is not even clear that those who identify as transgender share "distinguishing characteristics." *Cleburne*, 473 U.S. at 441. While some guidelines note that not all "gender diverse" people identify as "transgender," AAP Statement at 2, others use "transgender" as "an umbrella term" that includes "a diverse group of individuals," Endocrine Society Guidelines at 3875; *see* WPATH Guidelines at 97. Depending on who you ask, the term covers people who identify with any of the following gender identities: "boygirl," "girlboy," "genderqueer," "eunuch," "bigender," "pangender," "androgyne," "genderless," "gender neutral," "neutrois," "agender," "genderfluid," and "third gender," and many others. WPATH Guidelines at 96; APA Guidelines at 862; Endocrine Society Guidelines at 3875. It is hard to define a class that appears to be undefinable, and it appears that at least some individuals who identify as "transgender" at times identify with a gender that matches their biological sex.

Third, the assertion that transgender individuals lack "political power" (Br., Doc. 8 at 32) does not square with reality. "[S]ome degree of prejudice from at least part of the public at large" is not enough. *Bd. of Trustees of Univ. of Alabama v. Garrett*, 531 U.S. 356, 366 (2001). The question is whether transgender individuals are "relegated to such a position of political powerlessness as to command extraordinary protection from the majoritarian political process." *Murgia*, 427 U.S. at 313.

They are not. Even assuming that those who favor hormonal and surgical interventions are advancing the interests of transgender individuals, their voices are amply heard. The President recently "recognize[d] Transgender Day of Visibility, an annual celebration of the resilience, achievements, and joy of transgender people in the United States and around the world."[59] The Biden Administration weighed in on the exact issue in this litigation, stating that the President believes in "the positive impact" of the procedures regulated here.[60] (And after an unexplained delay, the Administration intervened here.) Last year, the "Equality Act," "which would amend the 1964 Civil Rights Act to protect people from being discriminated based on sexual orientation and gender identity in employment, housing and other services," was passed by the House of Representatives and remains a presidential priority.[61] These actions bely any suggestion that transgender individuals lack political power. *Cf. Cleburne*, 473 U.S. at 445 (not "quasi-suspect" class in part because supportive "legislative response" "could hardly have occurred and survived without public support," thus "negat[ing] any claim that the mentally retarded are politically powerless in the sense that they have no ability to attract the attention of the lawmakers").

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[59] *Fact Sheet: Biden-Harris Administration Advances Equality and Visibility for Transgender Americans*, The White House (Mar. 31, 2022), https://perma.cc/UY2S-RCLD.
[60] *Id.*
[61] Daniella Diaz & Annie Grayer, *House passes Equality Act aimed at ending discrimination based on sexual orientation and gender identity*, CNN (March 16, 2021), https://www.cnn.com/2021/02/25/politics/equality-act-passes-house/index.html.

Moreover, support for Plaintiffs' approach goes beyond the halls of government. The signature block on Plaintiffs' complaint (Doc. 1), for instance, suggests that transgender individuals have little trouble courting assistance from prominent counsel. And the extensive list of pro-plaintiff amicus briefs in a similar, pending Eighth Circuit case, *Brandt v. Rutledge*, No. 21-2875 (8th Cir. docketed Aug. 23, 2021), confirms that the interventionist approach to gender dysphoria is being heard. Standing out among the deluge of pro-plaintiff amici in *Brandt* are the United States government and almost half the States—who join hands with corporate interests and dozens of nonprofits. And media powers are responsive to transgender interests. USA Today, for example, recently named Rachel Levine, "the nation's highest-ranking openly transgender official," one of its "Women of the Year."[62]

The proposition that transgender Americans today are further from "full equality" than "the mentally retarded" were in 1985—a group that suffered "eugenic marriage and sterilization laws" and whose treatment "paralleled[] the worst excesses of Jim Crow"—is self-refuting. *Cleburne*, 473 U.S. at 461-64 (Marshall, J., concurring in the judgment in part and dissenting in part). Transgender individuals receive support in numerous aspects of public and private life; they are not a suspect or quasi-suspect class.

[62] *Women of the Year*, USA TODAY (Mar. 13, 2022), https://perma.cc/2PUS-P72U.

B. The Act Satisfies Any Level of Scrutiny.

Because no suspect classification is at issue, Plaintiffs' "equal protection claim is subject only to rational basis review." *Leib v. Hillsborough Cnty. Pub. Transp. Comm'n*, 558 F.3d 1301, 1306 (11th Cir. 2009). "The rational basis test asks (1) whether the government has the power or authority to regulate the particular area in question, and (2) whether there is a rational relationship between the government's objective and the means it has chosen to achieve it." *Id.* "This standard is easily met": the "statute is presumed constitutional," "a state has no obligation to produce evidence to sustain the rationality of a statutory classification," and "the burden is on the one attacking the law to negate every conceivable basis that might support it, even if that basis has no foundation in the record." *Id.* (cleaned up).

Here, Plaintiffs do not carry their burden to rebut "the presumption of legislative good faith." *Abbott v. Perez*, 138 S. Ct. 2305, 2324 (2018). As amply demonstrated above and by the Act's findings, the Legislature reasonably chose to protect children from unproven medical procedures pushed by ideological groups. "The only direct evidence" is that the "Legislature's intent was legitimate," given the focus in the legislative findings on safety concerns. *Id*. at 2327. And the Act "appl[ies] evenhandedly to all" children, protecting them from harmful experimentation. *Vacco*, 521 U.S. at 800. It thus singles out no one and satisfies rational-basis review.

Even if heightened scrutiny applied, the Act would easily survive. As with any other law, the Act "is accorded a strong presumption of validity." *Heller v. Doe ex rel. Doe*, 509 U.S. 312, 319 (1993). Under the intermediate scrutiny applicable to classifications based on sex, a law is constitutional if it is "substantially related" to an "important governmental objective." *Virginia*, 518 U.S. at 524. Multiple, significant government objectives are at stake.

The most important is Alabama's interest in protecting vulnerable children. "It is indisputable 'that a State's interest in safeguarding the physical and psychological well-being of a minor is compelling.'" *Otto v. City of Boca Raton, Fla.*, 981 F.3d 854, 868 (11th Cir. 2020) (quoting *New York v. Ferber*, 458 U.S. 747, 756-57 (1982)); *see, e.g.*, *Sable Commc'ns of Cal., Inc. v. FCC*, 492 U.S. 115, 126 (1989) ("[T]here is a compelling interest in protecting the physical and psychological well-being of minors."). "States validly may limit the freedom of children to choose for themselves in the making of important, affirmative choices with potentially serious consequences." *Bellotti v. Baird*, 443 U.S. 622, 635 (1979). That is because "during the formative years of childhood and adolescence, minors often lack the experience, perspective, and judgment to recognize and avoid choices that could be detrimental to them." *Id.* The State also has an interest in regulating medicine and experimental medical treatments on minors in Alabama. *See Gonzalez*, 550 U.S. at 157

(recognizing that States have "a significant role to play in regulating the medical profession"); *see also Washington v. Glucksberg*, 521 U.S. 702, 731 (1997) (same).

The federal government's suggestion that these interests are "pretextual" (Br., Doc. 62-1 at 28) lacks any foundation. The United States has nothing to say about the Act's extensive findings, other than the unexplained comment that any "suggestion that transgender minors will 'outgrow' their gender identity" amounts to "moral disapproval." *Id.* But Plaintiffs' experts contend only that the treatments should be made available to children suffering from gender dysphoria—*not* every child who identifies as transgender. *E.g.,* Rosenthal Decl., Doc. 8-3 at 9. Nor does the United States contest the overwhelming evidence that most cases of gender dysphoria *do* desist, so its aspersions on this (correct) finding are difficult to understand. Does the United States really prefer that children *not* outgrow their gender dysphoria?

The federal government's cherry-picked, out-of-context quotes[63] from two individuals (at least one given in the context of another bill) warrant little discussion.

[63] For instance, as an example of alleged pre-text and animus, the government accuses Representative Allen of referring "to gender-affirming care, when provided to transgender youths as 'child abuse.'" U.S. Br. 62-1 at 17. He explained why: "In my opinion, administering these powerful medications to minors whose mind is not made up and is not developed enough to make these long-term decisions about how it affects their body, it is not good for these children. Yes, I consider it child abuse." Alabama House Judiciary Committee, Mar. 2, 2022, 1:34:28 PM, https://vimeo.com/683940881/4edaeefda2. Likewise, the government says that Representative Allen's motivation for sponsoring the bill was because he thought that "if children 'are born male, that they're a male." U.S. Br. 62-1 at 16. Again, the context provides a fuller picture. In response to a radio host's request in a previous legislative term to respond to the argument "that you are primarily motivated by bigotry," Representative Allen explained: "That is the furthest thing from the truth. We just want to protect kids, and, you know, I don't believe we're protecting children

See Exxon Mobil Corp. v. Allapattah Servs., Inc., 545 U.S. 546, 568 (2005) ("Judicial investigation of legislative history has a tendency to become … an exercise in looking over a crowd and picking out your friends." (cleaned up)); *NLRB v. SW Gen., Inc.*, 137 S. Ct. 929, 943 (2017) ("[F]loor statements by individual legislators rank among the least illuminating forms of legislative history."). The idea that "sex" "refer[s] only to biological distinctions between male and female" was assumed by the Supreme Court in *Bostock*, 140 S. Ct. at 1739, and "long has been held—and continues to be held—in good faith by reasonable and sincere people here and throughout the world," *Obergefell v. Hodges*, 576 U.S. 644, 657 (2015). Likewise, recognizing both that sex is different from gender identity and that sex usually aligns with gender identity does not imply "profound disapproval." U.S. Br., Doc. 62-1 at 28; *see Bostock*, 140 S. Ct. at 1746-47 ("We agree that homosexuality and transgender status are distinct concepts from sex.").

Finally, the federal government has no account for why this supposedly hateful statute is carefully tailored to *minors* and certain experimental procedures. *Cf. Lofton*, 358 F.3d at 826 (rejecting a similar animus argument because the

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when we allow them to take these powerful drugs that are used off-label that blocks puberty because puberty is not a disease.… [W]e need to be protecting these kids and showing them compassion, but at the same time affirming that if they are born male, that they're male, if they're born female, they're female. And we don't need to be allowing the prescription of these powerful drugs that we don't know the long-term ramifications of." Tony Perkins, *Wes Allen Discusses Upcoming Alabama Senate Vote on Vulnerable Child Compassion and Protection Act*, YouTube (Feb. 15, 2021), https://www.youtube.com/watch?v=E9Q_b22cUWw.

"classification is limited to [a] narrow and discrete context" with "a plausible connection with the state's asserted interest"). Only one governmental entity here has elevated moral ideology above scientific fact, and it is not Alabama.

Next, the Act is closely related to Alabama's important government interests in protecting children and regulating the medical profession. As an initial matter, this Court's review of the Act's means must be deferential. A State has "wide discretion to pass legislation in areas where there is medical and scientific uncertainty." *Gonzales*, 550 U.S. at 163. In fact, the legislature's role is particularly important when the science is unsettled or varying factions disagree about the best course of treatment, and "it is precisely where such disagreement exists that legislatures have been afforded the widest latitude in drafting such statutes." *Kansas v. Hendricks*, 521 U.S. 346, 360 n.3 (1997).

Such is the case here. Gender-transition procedures for children are fraught with medical and scientific uncertainty. Though not much is known in this field, that much is. Yet Plaintiffs' theory relies entirely on this Court second-guessing the Legislature's determination that the treatments Plaintiffs seek have *not* been proven to be safe and effective for treating children with gender dysphoria. That is why they over and over must refer to the interventions as "established" (at 21), "the only safe and effective treatment for gender dysphoria" (at 13), the "standard of care" (at 26) supported by "the consensus of medical experts and overwhelming evidence" (at

30). *See also* U.S. Br., Doc. 62-1 at 30 ("the overwhelming weight of medical evidence"). If any of these characterizations are off, Plaintiffs' case falls apart.

And the characterizations *are* off. As shown above, to the extent there is an emerging consensus, it's one of increasing humility. Cantor Decl. ¶ 15 ("Public healthcare systems throughout the world have … been withdrawing their earlier support for childhood transition, responding to the increasingly recognized risks associated with hormonal interventions and the now clear lack of evidence that medical transition was benefitting most children, as opposed to the mental health counseling accompanying transition."). We just don't know very much about the procedures Plaintiffs are pushing.

Start with diagnosis. While a doctor can determine whether a child reports to be in distress due to the incongruence he feels between his biological sex and his still-forming gender identity, the doctor cannot determine whether the child's dysphoria or his gender incongruence will persist into adulthood. *Id.* ¶ 43; Laidlaw Decl. at 6 ("Because there is no physical marker to diagnose gender identity and because it is not possible to predict which child or adolescent will desist it is not possible to know which young person will remain transgender identified as adults."); Endocrine Society Guidelines at 3876 ("With current knowledge, we cannot predict the psychosexual outcome for any specific child.") Thus, even if the treatments at issue were beneficial to youth whose gender dysphoria persisted into adulthood, the

Legislature would still have every reason to ban them because there is no way to tell who those children are—and guessing wrong would be catastrophic.

But it's worse than that. Not only is there no way to accurately predict persistence, but we know that the majority of gender dysphoric youth will *not* persist. *See* Cantor Decl. ¶ 36 ("[D]espite coming from a variety of countries, conducted by a variety of labs, using a variety of methods, all spanning four decades, every study without exception has come to the identical conclusion: Among prepubescent children who feel gender dysphoric, the majority cease to want to be the other gender of the course of puberty—ranging from 61-88% desistance across the large, prospective studies."); DSM-5 at 455 (recognizing that between 97.8% and 70% of gender dysphoric boys and 88% and 50% of gender dysphoric girls will have their dysphoria desist by adulthood); WPATH Standards at 11 (similar); Endocrine Society Guidelines at 3879 (similar). So it is more likely that a clinician will guess *wrong* and provide transitioning interventions to a child whose dysphoria would otherwise desist than that she will guess *right* and correctly pick out the persister from the crowd of desisters. Again, if this is all the Legislature knew, it would have every reason to ban interventions that rely on roulette-like odds.

Worse, that's for the traditional patient profile that we know the most about—the childhood-onset gender dysphoria that occurs most often in boys. That world exists no longer. Today, adolescent girls have become the default patient. *See* Hunter

Decl. ¶¶ 66-88. No one knows why, but it is concerning that—unlike with the traditional diagnosis—the "majority of cases appear to occur within clusters of peers and in association with increased social media use and especially among people with autism or other neurodevelopmental or mental health issues." Cantor Decl. ¶ 71; Kenny Decl. at 3-35. Given these significant differences, until more research occurs, "one cannot apply findings from the other types of gender dysphoria to this type." Cantor Decl. ¶ 72. Thus, the Legislature could determine that the risks of treatment outweigh their benefits given that the best evidence Plaintiffs can point to did *not* provide medical interventions to these sorts of patients.

It gets worse still. Not only is it impossible to tell who would benefit from the interventions if they worked the way Plaintiffs say, but the evidence does not even show that the treatments offer long-term benefits even when they are administered under the most conservative conditions. The initial promise of the Dutch experiments has not borne fruit, as efforts to replicate their moderate success have not succeeded. Cantor Decl. ¶¶ 60-66. And the evidentiary basis for using puberty blockers or cross-sex hormones has not grown otherwise. *E.g.*, NICE Puberty Blocker Evidence Review at 12; NICE Cross-Sex Hormone Evidence Review at 14. Here again, the Legislature could reasonably determine that "[t]he failure of other clinics to repeat the already very qualified success of the Dutch clinic demonstrates the need

for still greater caution before endorsing transition and the greater need to resolve potential mental health obstacles before doing so." Cantor Decl. ¶ 66.

So much for the benefits. Turning to the risk part of the analysis, expansive reviews of the literature show great unknowns (because puberty blockers and hormones used in this way have not been well studied) and significant risks of irreversible harm. The risks of puberty blockers, for instance, include permanent sterility, loss of sexual function, and loss of bone density. *See* Laidlaw Decl. at 12-19. Cross-sex hormones add more to the mix. Females taking testosterone face higher risks of myocardial infarction and cardiovascular disease, irreversible changes to the vocal cords, polycystic ovary syndrome and atrophy of the lining of the uterus, and a number of mood and psychiatric disorders. *Id.* Males taking supraphysiologic doses of estrogen may develop hyperestrogenemia, the consequences of which "include increased risk of myocardial infarction and death due to cardiovascular disease." *Id.* at 19. Surgeries pose even more obvious harms, which is likely why Plaintiffs don't talk about them—though the clinical pathway started by puberty blockers and cross-sex hormones as a child often end in surgical transitions by adulthood (or before). *Id.* at 19-22. Weighing the costs and benefits, the Legislature could reasonably determine, as Sweden's National Board of Health and Welfare did, that "the risk of puberty suppressing treatment with GnRH-analogues and gender-affirming hormonal treatment currently outweigh the possible benefits." Sweden Statement at 3.

Then there is the problem of informed consent—another issue Plaintiffs don't dwell on. But the rising tide of detransitioners who say the "consent" they gave when they were younger was *not* informed shows that the Legislature did not have to ignore the common-sense notion that children are not very good at determining their future needs and desires.. As Corrina Cohn put it powerfully: "Adults who advocate for adolescent transition do so without understanding what tradeoffs early transition entails, which includes the loss of fertility, the likelihood of sexual dysfunction, and the likelihood of surgical complication inflicted at an early age from elective procedures. Unfortunately, I do understand some of these tradeoffs." Cohn Decl. at 4.

In short, the procedures regulated here are experimental at best and significantly harmful at worst. The Legislature considered the limited evidence and made express findings explaining its reasoning. *See* Act § 2. Then it concluded that the risks of these experimental procedures outweighed their benefits, and that "the decision to pursue a course of hormonal and surgical interventions to address a discordance between the individual's sex and sense of identity should not be presented to or determined for minors who are incapable of comprehending the negative implications and life-course difficulties attending to these interventions." *Id.* § 2(16).

Alabama's regulation of certain experimental medical procedures—puberty blockers, cross-sex hormones, and transition surgical interventions—on gender incongruent youth is thus directly related, and narrowly tailored, to the State's interest

in protecting children from harmful and experimental medical procedures. Notably, given the State's particular interest in protecting children, the State did *not* ban the procedures for consenting adults (though it could have done that, too, given the medical uncertainties and harms involved). Nor did it restrict other, safer, and more effective treatments for treating gender dysphoric, such as exploratory psychotherapy; instead, it expressly protected those treatments. *See* Act § 6. Finally, the Act carefully exempts minors born with certain "medically verifiable disorder[s] of sex development," recognizing that these unique cases may involve different treatment considerations. Act § 4(b).

For these reasons, the Act is, at minimum, "substantially related to the achievement of" the State's important interests in protecting children and regulating the medical profession. *Nguyen*, 533 U.S. at 60 (cleaned up); *see id.* at 70 (emphasizing that under intermediate scrutiny, a statute need not "be capable of achieving its ultimate objective in every instance"). The Act does not discriminate based on sex or gender identity, but even if it were read to, such "discrimination" would be explained by the fact that boys and girls "are not similarly situated with regard to" the experimental procedures here. *Id.* at 63. Because "a biological difference" would underlie any "imposition of a different set of rules," those rules would be "neither surprising nor troublesome from a constitutional perspective." *Id.* at 63-64. Especially in a field like this, "fraught with medical and scientific uncertainties," the

State's "latitude must be especially broad." *Andino*, 141 S. Ct. at 10 (2020) (Kavanaugh, J., concurring). The Act easily passes even heightened scrutiny.

II. Parents Have No Substantive Due Process Right To Obtain Experimental Medical Procedures For Gender Transition Purposes.

Plaintiffs' lead argument is that the Act "violates the fundamental right of the Parent Plaintiffs to obtain essential medical care for their children." Br., Doc. 8 at 19. But the medical interventions Plaintiffs label "essential" are experimental at best and outright harmful at worst. And even assuming the interventions could be beneficial when applied correctly (something Plaintiffs cannot establish), there is currently no way for doctors—or the children themselves, or the children's parents—to predict with any degree of accuracy who would be a good candidate for the treatments. We know, however, that the majority of gender dysphoric youth are *not* good candidates since their dysphoria will resolve by the time they reach adulthood. Plaintiffs' desire for experimental treatments cannot outweigh the Legislature's determination that, for now at least, there is insufficient evidence to conclude that the benefits of the treatments outweigh the long-term risk they pose to vulnerable children. That policy determination is due deference from this Court, particularly since the Act implicates no recognized substantive due process right.

Indeed, courts of appeals have universally rejected claims—even by terminally ill patients—that there is a substantive-due-process right to experimental medical procedures. There is thus no question that the children here have no substantive

due process right to experimental gender-transition procedures. Instead, Plaintiffs claim that *parents* have a substantive due process fundamental right to access experimental gender-transition procedures for their children. Because there is no right of affirmative access to experimental gender-transition procedures in the first place, parents have no right to access experimental gender-transition procedures for their children. *See Doe By & Through Doe v. Pub. Health Tr. of Dade Cty.*, 696 F.2d 901, 903 (11th Cir. 1983) (holding that the parent's "rights to make decisions for his daughter can be no greater than his rights to make medical decisions for himself").

In any event, Plaintiffs identify no history or tradition remotely like this right, instead relying on a few decades-old cases mainly involving the ability of parents to choose how to educate their children. Subjecting every government regulation of experimental childhood medicine to strict scrutiny is nothing like that. There is no fundamental liberty interest in obtaining specific medical procedures for children—and especially not experimental ones used for gender transition purposes.

A. No Substantive Due Process Right Exists to Access Experimental Medical Procedures.

"A fundamental right is one that is explicitly or implicitly guaranteed by the Constitution." *Morrissey v. United States*, 871 F.3d 1260, 1268 (11th Cir. 2017) (cleaned up). "[O]n its face," "the Due Process Clause guarantees no substantive rights, but only (as it says) process." *Echols v. Lawton*, 913 F.3d 1313, 1326 (11th Cir. 2019) (cleaned up). "For that reason, the Supreme Court has been reluctant to

expand the concept of substantive due process." *Id*. Courts must "exercise the utmost care whenever we are asked to break new ground in this field, lest the liberty protected by the Due Process Clause be subtly transformed into the policy preferences of the members of" the judiciary. *Doe v. Moore*, 410 F.3d 1337, 1343 (11th Cir. 2005) (cleaned up).

Courts "analyze a substantive due process claim by first crafting a careful description of the asserted right." *Id.* (cleaned up). "[A] careful description of the fundamental interest at issue here allows [courts] to narrowly frame the specific facts before us so that we do not stray into broader constitutional vistas than are called for by the facts of the case at hand." *Id.* at 1344. Once the right has been carefully defined, courts analyze whether the claimed right is "(1) 'objectively, deeply rooted in this Nation's history and tradition' and (2) 'implicit in the concept of ordered liberty, such that neither liberty nor justice would exist if [it] were sacrificed.'" *Williams v. Att'y Gen. of Ala.*, 378 F.3d 1232, 1242 (11th Cir. 2004) (quoting *Glucksberg*, 521 U.S. at 721).

As just shown, the procedures regulated here are experimental. Plaintiffs do not argue that a child has a personal substantive due process right to experimental gender-transition procedures. There is no such right. "The mere novelty of such a claim is reason enough to doubt that 'substantive due process' sustains it; the alleged right certainly cannot be considered so rooted in the traditions and conscience of our

people as to be ranked as fundamental." *Reno v. Flores*, 507 U.S. 292, 303 (1993) (cleaned up). Federal courts of appeal have spoken with one voice in rejecting claims of affirmative access to medical procedures and treatments. *Abigail All. for Better Access to Developmental Drugs v. von Eschenbach*, 495 F.3d 695, 710 n. 18 (D.C. Cir. 2007) (en banc) ("No circuit court has acceded to an affirmative access claim.").

For instance, the Eleventh Circuit rejected the assertion of "a fundamental right to father a child through the use of advanced IVF procedures." *Morrissey*, 871 F.3d at 1269. The court first rejected the plaintiff's effort to describe the right as a "fundamental right to reproduce." *Id.* at 1268. "The pertinent question," according to the court, "is not whether the Constitution protects a right to 'procreation' generally," "but rather, more specifically, whether a man has a fundamental right to procreate via an IVF process that necessarily entails the participation of an unrelated third-party egg donor and a gestational surrogate." *Id.* at 1269.

The court emphasized that the procedures are "decidedly modem phenomena," for "it wasn't until the mid to late 1980s that doctors began to use gestational surrogates in conjunction with IVF procedures." *Id.* Thus, these procedures lacked a "deep rooting" in "this Nation's history and tradition." *Id.* (cleaned up). "Particularly in view of the ethical issues" and "ongoing political dialogue about those issues," the court declined to recognize a new fundamental right that would "place the matter outside the arena of public debate and legislative action." *Id.* at 1270 (cleaned up).

All other circuits to reach the issue agree that there is no affirmative right to particular medical treatments. The en banc D.C. Circuit has held that there is not "a right to procure and use experimental drugs that is deeply rooted in our Nation's history and traditions." *Abigail All.*, 495 F.3d at 711. The Constitution does not afford even "terminally ill patients a right of access to experimental drugs that have passed limited safety trials but have not been proven safe and effective." *Id.* at 697; *see also Raich v. Gonzales*, 500 F.3d 850, 864 (9th Cir. 2007) (Despite a "long history of use," medical marijuana was not "deeply rooted in this Nation's history and tradition" or "implicit in the concept of ordered liberty."); *Rutherford v. United States*, 616 F.2d 455, 456 (10th Cir. 1980) (rejecting terminally ill cancer patients' claim for the right "to take whatever treatment they wished regardless of whether the FDA regarded the medication as 'effective' or 'safe.'").

In sum, no fundamental right to access particular medical procedures exists. A "claim of a right of access to experimental drugs [and surgeries] is subject only to rational basis scrutiny." *Abigail All.*, 495 F.3d at 712.

B. Parents Have No Substantive Due Process Right to Obtain Experimental Gender Transition Procedures for Their Children.

Seeking to avoid the above precedent, Plaintiffs say that their asserted right is not the child's but instead "the fundamental right of the Parent Plaintiffs to obtain essential medical care for their children" Br., Doc. 8 at 27. But parents cannot have a stronger right to obtain experimental medical procedures than their children would

have to access those procedures. And both the Supreme Court and the Eleventh Circuit demand that the relevant right be "carefully defined." Plaintiffs here do not come close to offering such a careful definition, much less show that any carefully defined right is deeply rooted in history or tradition.

First, a right on the parent's part could exist only if the child has a right to access experimental medical interventions. The parent's parental-rights claim is "derivative from, and therefore no stronger than" the child's claim. *Whalen v. Roe*, 429 U.S. 589, 604 (1977). As shown above, there is no individual fundamental right to access experimental gender-transition procedures. And the Eleventh Circuit has squarely held in the medical decision-making context that the parent's "rights to make decisions for his daughter can be no greater than his rights to make medical decisions for himself." *Doe*, 696 F.2d at 903. Because neither parent nor child has the right to access particular medical procedures, a parent does not have the right to obtain that treatment for the child.[64]

Second, Plaintiffs make no effort to carefully define their novel right or show that the right is deeply rooted in history and tradition. "Although the text of the

[64] At one point, Plaintiffs suggest that their novel parental right is limited to instances when the parent's decision is "recommended to the Parent Plaintiffs as appropriate for their children by their medical providers" and recognized by an assortment of cherry-picked medical groups. Br., Doc. 8 at 29. The arbitrary nature of these limitations is illustrated by Plaintiffs' omission of any limitation based on the child's own wishes. And the need for a court applying this unprecedented right to investigate the views of (certain) medical providers and various interest groups as to the appropriate procedures in a particular case counsels against the right. Nor do Plaintiffs explain why a cherry-picked doctor's advice is given weight while the government's findings are not.

Constitution contains no reference to familial or parental rights," "Supreme Court precedent" has long recognized that parents have a fundamental right to make certain "decisions concerning the care, custody, and control of their children." *Lofton v. Sec'y of Dep't of Child. & Fam. Servs.*, 358 F.3d 804, 816 (11th Cir. 2004) (cleaned up). Though "care, custody, and control" is a convenient shorthand, parents do not have a right over everything bearing on a child's care, custody, and control.

Rather, the Supreme Court has made clear that "rights of parenthood" are "not beyond regulation in the public interest." *Prince v. Massachusetts*, 321 U.S. 158, 166 (1944). "[T]he state has a wide range of power for limiting parental freedom and authority in things affecting the child's welfare." *Id.* at 167. "A democratic society rests, for its continuance, upon the healthy, well-rounded growth of young people into full maturity as citizens, with all that implies. It may secure this against impeding restraints and dangers, within a broad range of selection." *Id.* at 168. Though parental consent "may lessen the likelihood that some evils the legislation seeks to avert will occur," consent "cannot forestall all of them. *Id.* at 169. States may proscribe activities for children—even without including exceptions for parental consent—that they could not proscribe for adults. *See id.*

Along these lines, Alabama prohibits minors from participating in many potentially harmful activities that not even parental consent can render legally permissible, from purchasing ephedrine (Ala. Code § 20-2-190) to renting watercraft before

age 12 (Ala. Code § 33-5-51) to betting on horse and dog races (Ala. Code § 11-65-44). Even a parent who thinks it would be better for the child to do some of these things has no legal right to decide that the child can do them. In short, especially where "psychological or physical injury" may be involved, "[p]arents may be free to become martyrs themselves"—"[b]ut it does not follow they are free, in identical circumstances, to make martyrs of their children." *Prince*, 321 U.S. at 170.

Under circuit precedent, courts must be "very reluctant to expand substantive due process by recognizing new fundamental rights." *Doe*, 410 F.3d at 1343. The Eleventh Circuit has repeatedly refused to recognize new "alleged parental liberty interests" in "the murky area of unenumerated constitutional rights." *Robertson*, 420 F.3d at 1256. *Robertson* refused to recognize "a right to companionship with an adult child." *Id.* at 1258. In *Lofton*, the Eleventh Circuit "decline[d] appellants' invitation to recognize a new fundamental right to family integrity for groups of individuals": "Such an expansion of the venerable right of parental control would well exceed our judicial mandate as a lower federal court." 358 F.3d at 815.

Plaintiffs do not even bother to articulate any carefully defined right. "[T]he scope of the liberty interest at stake here must be defined in reference to the scope of the Alabama statute." *Williams*, 378 F.3d at 1241. The Act prohibits certain medical interventions on children for transitioning genders. The carefully defined right

then, as claimed by Plaintiffs, is for a parent to obtain for a child experimental medical procedures for transitioning that child's gender.

The next question is whether Plaintiffs have shown that such a right is *both* "objectively, deeply rooted in this Nation's history and tradition" *and* "implicit in the concept of ordered liberty." *Id.* at 1242. Asking the question answers it. Obtaining gender-transition procedures is not deeply rooted in America's traditions or required for the functioning of a just society, and Plaintiffs make no effort show otherwise. Among other things, like the IVF procedures in *Morrissey*, these procedures are "decidedly modern phenomena." 871 F.3d at 1269; *see* Compl., Doc. 1 ¶ 29. That is particularly true when it comes to their application to *children*—something that is still being studied, and hotly debated, around the world. *See supra* at pp. 39-49, 58-64. "Particularly in view of the ethical issues" and "ongoing political dialogue about those issues," this Court should not recognize a new fundamental right that would "place the matter outside the arena of public debate and legislative action." *Morrissey*, 871 F.3d at 1270.

Plaintiffs assert that "[a] parent's ability to seek and obtain appropriate medical treatment to ensure the health and wellbeing of their child is a … fundamental right." Br., Doc. 8 at 28. Putting aside that this is not a careful description of the claimed right and says nothing about history or tradition, the only case Plaintiffs cite for this proposition only supports the State's argument. In *Bendiburg v. Dempsey*,

the Eleventh Circuit made clear that "[p]arental autonomy may be limited when parental decisions jeopardize the health or safety of a child, and the state can intercede on the child's behalf." 909 F.2d 463, 470 (11th Cir. 1990). Here, as shown above, Alabama's law seeks to protect children from experimental medical procedures. The Parent Plaintiffs are unlikely to succeed on their substantive due process claim.[65]

III. The Law Is Not Void For Vagueness.

Plaintiffs' vagueness challenge rests on the claim that the word "causes" lacks "sufficient definiteness." Compl., Doc. 1 ¶ 131. Plaintiffs argue that "the Act fails to provide *any* standard to determine what an individual must do to 'cause'" a particular result. Br., Doc. 8 at 47; *see id.* at 48 ("'Cause' has an incredibly broad definition."). If basic causation requirements are void for vagueness, then much of American law is unconstitutionally vague.

Vagueness arises when a law either "fails to provide a person of ordinary intelligence fair notice of what is prohibited" or "is so standardless that it authorizes or even encourages seriously discriminatory enforcement." *United States v. Williams*, 553 U.S. 285, 304 (2008). The Act here provides that, absent exception, "no person shall engage in or cause any of the following practices to be performed upon a minor if the practice is performed for the purpose of attempting to alter the

[65] Plaintiffs' meritless suggestion that the law bars "*seeking* expert medical advice" (Br., Doc. 8 at 29) is addressed below. The law, like many criminal laws, only implicates conduct that causes a crime.

appearance of or affirm the minor's perception of his or her gender or sex, if that appearance or perception is inconsistent with the minor's sex." § 4. Covered practices are "[p]rescribing or administering" various drugs, "[p]erforming" certain "surgeries," and "[r]emoving any healthy or non-diseased body part or tissue." *Id.*

Plaintiffs challenge only the word "cause." This challenge fails, for multiple reasons. *First*, a vagueness challenge may be raised only "as a defense during an actual prosecution" or if an individual is being "chilled from engaging in constitutional activity." *Bankshot Billiards, Inc. v. City of Ocala*, 634 F.3d 1340, 1349–50 (11th Cir. 2011). As shown above, neither is true here.

Second, "[t]o succeed on a claim that an ordinance is void for vagueness, 'the complainant must demonstrate that the law is impermissibly vague in all of its applications.'" *Stardust, 3007 LLC v. City of Brookhaven*, 899 F.3d 1164, 1176 (11th Cir. 2018) (quoting *Vill. of Hoffman Estates v. Flipside, Hoffman Ests., Inc.*, 455 U.S. 489, 497 (1982)). A "corollary of this rule is that '[a] plaintiff who engages in some conduct that is clearly proscribed cannot complain of the vagueness of the law as applied to the conduct of others." *Id.* (quoting *Hoffman Ests.*, 455 U.S. at 495) (alteration in original). Here, there is no question that Plaintiffs seek the right for their doctors to violate the law's core prohibition on prescribing puberty suppressors and hormones for the purpose of changing gender. *See, e.g.*, Compl., Doc. 1 ¶¶ 58 ("Continuing to receive puberty-blockers … is essential for Zachary's mental

health"), 65-66 (plaintiff's estrogen "will be disrupted"), 73-74 (plaintiff's "hormone replacement therapy" "will be disrupted"); 76 ("[Dr. Koe] and her staff provide support to patients who need assistance in self-administering injectable medications like testosterone."). This is the heartland conduct prohibited by the law, so Plaintiffs' vagueness claims fails at the outset.

Third, there is no impermissible vagueness in the term "engage in or cause." The same phrase litters American criminal codes—and has for centuries. Take Alabama's criminal conspiracy statute: "A person is guilty of criminal conspiracy if, with the intent that conduct constituting an offense be performed, he agrees with one or more persons *to engage in or cause* the performance of such conduct." Ala. Code § 13A-4-3 (emphasis added); *see also, e.g.*, *United States v. Rabinowich*, 238 U.S. 78, 88 (1915) (common law definition, "[f]or two or more to confederate and combine together to commit or cause to be committed a breach of the criminal laws"). The State is unaware of any decision suggesting that this term is so vague that every criminal statute using it is unconstitutional.

Plaintiffs present no actual argument about why this term is vague. Instead, they ignore the first half of the term ("engage in") and then provide a laundry list of hypotheticals that are supposedly challenging. Br., Doc. 8 at 48; *see id.* at 43. As shown next, Alabama law speaks to their hypotheticals. But more fundamentally, Plaintiffs' "basic mistake"—explained by their own case—"lies in the belief that the

mere fact that close cases can be envisioned renders a statute vague." *Williams*, 553 U.S. at 305. "That is not so. Close cases can be imagined under virtually any statute." *Id.* at 305-06. "What renders a statute vague is not the possibility that it will sometimes be difficult to determine whether the incriminating fact it establishes has been proved; but rather the indeterminacy of precisely what that fact is." *Id.* at 306.

For instance, courts have "struck down statutes that tied criminal culpability to whether the defendant's conduct was 'annoying' or 'indecent'—wholly subjective judgments without statutory definitions, narrowing context, or settled legal meanings." *Holder v. Humanitarian L. Project*, 561 U.S. 1, 20 (2010). And courts have upheld phrases like "crimes against nature," holding that phrase "no more vague than many other terms used to describe criminal offenses at common law and now codified in state and federal penal codes." *Rose v. Locke*, 423 U.S. 48, 50 (1975).

Plaintiffs appear to concede that the statute clearly defines what practices are prohibited. Whether a person "engages in" those practices "for the purpose" of transitioning a child's gender is a "clear question[] of fact," "a true-or-false determination." *Williams*, 553 U.S. at 306.

Plaintiffs' primary complaint is about "cause," and their hypotheticals are founded on first-year law school musings about causation. But the Alabama Code answers which form of causation matters: "A person is criminally liable if the result would not have occurred but for his conduct, operating either alone or concurrently

with another cause, unless the concurrent cause was sufficient to produce the result and the conduct of the actor clearly insufficient." Ala. Code § 13A-2-5(a). This modified but-for test is the same used in "other modern criminal codes." *Id.* Commentary. "To be sure, it may be difficult in some cases to determine whether" this test has "been met." *Williams*, 553 U.S. at 306. "But courts and juries every day pass upon" causation. *Id.*; *id.* at 304 ("[P]erfect clarity and precise guidance have never been required."). Indeed, courts consider "causation requirement[s]" as *eliminating* any vagueness problem by adequately "put[ting] persons of ordinary intelligence on notice" of the possibility of criminal sanctions. *United States v. Matus-Leva*, 311 F.3d 1214, 1219 (9th Cir. 2002). This law is not void for vagueness.[66]

Moreover, under Alabama law, "[a] statute defining a crime, unless clearly indicating a legislative intent to impose strict liability, states a crime of mental culpability." Ala. Code § 13A-2-4(b); *contra* Br., Doc. 8 at 49 (suggesting "no *mens rea* requirement"). The Supreme Court "has made clear that scienter requirements alleviate vagueness concerns." *Gonzales*, 550 U.S. at 149-50. When "a doctor" performing a practice "will not face criminal liability if he or she" engages in the practice "by mistake, the [law] cannot be described as a trap for those who act in good faith." *Id.* (cleaned up). Thus, the culpability required by this law, in addition to the

[66] Tellingly, "[P]laintiffs themselves have repeatedly used the term[]" "cause" without apparent confusion as to its meaning. *Holder*, 561 U.S. at 22; *see* Compl., Doc. 1 ¶¶ 27, 29, 54, 66, 87; Br., Doc. 8 at 12, 13, 14, 15, 18, 23, 52 (Heading IV), 53, 54, 62 (Certificate of Service).

law's limitation based on "the purpose" for which the prohibited conduct was performed, further undermine any vagueness challenge.

The Alabama Code speaks to the Plaintiffs' other hypotheticals too. Again, Plaintiffs may not *like* what Alabama law says, and they may not *like* its "broad" scope (Br., Doc. 8 at 29), but that does not make it indeterminate. "It is apparent with respect to these [hypotheticals] that gradations of fact or charge would make a difference as to criminal liability, and so adjudication of the reach and constitutionality of the statute must await a concrete fact situation." *Holder*, 561 U.S. at 25 (cleaned up). Regardless, Alabama law speaks to out-of-state conduct. Ala. Code § 13A-4-4. It speaks to aiding-and-abetting liability. Ala. Code § 13A-2-23. And it speaks to the absurd suggestion that the victim (a vulnerable child) would be prosecuted (Br., Doc. 8 at 43): "a person shall not be legally accountable for behavior of another constituting a criminal offense if" "[h]e is a victim of that offense." Ala. Code § 13A-2-24.

The Act thus also "establish[es] minimal guidelines to govern law enforcement." *Gonzales*, 550 U.S. at 150. Like the judiciary, law enforcement is used to applying basic causation tests. And "scienter requirements narrow the scope of the Act's prohibition and limit prosecutorial discretion." *Id.* Plaintiffs' "arguments concerning arbitrary enforcement, furthermore, are … speculative": "This is a preenforcement challenge, where no evidence has been, or could be, introduced to indicate

whether the Act has been enforced in a discriminatory manner or with the aim of inhibiting constitutionally protected conduct." *Id.* (cleaned up).

In sum, one could substitute any other crime as the substantive core of Plaintiffs' hypotheticals and have the same questions. And Plaintiffs do not challenge this law's substantive core—the prohibited practices spelled out by the text. Unless most of American law is void for vagueness, the Act is not either.

IV. Criminal Conduct Is Not Protected By The First Amendment.

Plaintiffs' thinly argued First Amendment claim is meritless for related reasons. According to Plaintiffs, the Act "prohibit[s]" a person "from engaging in speech." Br., Doc. 8 at 43. But on its face, the Act makes it a crime for any person to "engage in or cause any of [several practices]" for the purpose of gender transitioning a minor. § 4(a). As Plaintiffs appear to concede (Br., Doc. 8 at 44), the only "speech" that would be criminalized is speech that "causes" a crime—for example, writing a prescription for an illegal use of a drug. *See* Act § 4(a)(1)-(3). Such speech has no First Amendment protection. "Many long established criminal proscriptions—such as laws against conspiracy, incitement, and solicitation—criminalize speech (commercial or not) that is intended to induce or commence illegal activities." *Williams*, 553 U.S. at 298. "[S]peech integral to criminal conduct" is one of the "long recognized," "well-defined and narrowly limited classes of speech, the prevention and punishment of which have never been thought to raise any

Constitutional problem." *United States v. Fleury*, 20 F.4th 1353, 1365 (11th Cir. 2021). "[I]t has never been deemed an abridgement of freedom of speech or press to make a course of conduct illegal merely because the conduct was in part initiated, evidenced, or carried out by means of language, either spoken, written, or printed." *Giboney v. Empire Storage & Ice Co.*, 336 U.S. 490, 502 (1949).

Again, this law prohibits certain practices. The only speech incidentally criminalized is speech that "causes"—as understood by well-established principles of causation—those criminal practices. To say this law is "content-based" (Br., Doc. 8 at 44) underscores the point: "It is precisely because" "the content of [the] speech" causes a crime that the speech is unprotected. *Fleury*, 20 F.4th at 1364. "Content-based restrictions are permitted when they are confined to [this] categor[y] of speech." *Id.* at 1365; *see Virginia v. Black*, 538 U.S. 343, 361-62 (2003) ("When the basis for the content discrimination consists entirely of the very reason the entire class of speech at issue is proscribable, no significant danger of idea or viewpoint discrimination exists." (cleaned up)).

As the Ninth Circuit explained, and by contrast, "[h]olding doctors responsible for whatever conduct the doctor could anticipate a patient *might* engage in after leaving the doctor's office is simply beyond the scope of either conspiracy or aiding and abetting." *Conant v. Walters*, 309 F.3d 629, 636 (9th Cir. 2002) (Br., Doc. 8 at 45). As discussed above, "engage in or cause" is a common formulation in

conspiracy or aiding-and-abetting statutes. And the Act expressly provides that "nothing in this act shall be construed as limiting or preventing psychologists, psychological technicians, and master's level licensed mental health professionals from rendering the services for which they are qualified by training or experience involving the application of recognized principles, methods, and procedures of the science and profession of psychology and counseling." § 6. In the course of treating children with gender dysphoria, practitioners remain free to pursue any model of treatment except the experimental procedures barred by § 4. Even Plaintiff Koe understands that, consistent with the Act, she could "refer[] [patients] to counseling and a psychiatrist." Koe Decl., Doc. 8-10 ¶ 11. *A fortiori*, a minister's counsel "to seek medical care" (Br., Doc. 8 at 48) is even farther from the Act's sweep.[67]

Moreover, most of Plaintiffs' parade of horribles come from the professional context. Br., Doc. 8 at 43. But state authority to regulate professional speech—even speech that is not criminal conduct—is well-established: "The First Amendment does not prevent restrictions directed at commerce or conduct from imposing incidental burdens on speech, and professionals are no exception to this rule." *Nat'l Inst. of Fam. & Life Advocs. v. Becerra*, 138 S. Ct. 2361, 2373 (2018) (cleaned up). State

[67] For that reason, Reverend Eknes-Tucker likely lacks standing. *See Little v. Strange*, 796 F. Supp. 2d 1314, 1329 (M.D. Ala. 2011) ("[I]f no credible threat of prosecution looms, the chill is insufficient to sustain the burden that Article III imposes, and a litigant's subjective fear will not be held to constitute an injury for standing purposes." (cleaned up)).

law may regulate speech "as part of the practice of medicine," which is "subject to reasonable licensing and regulation by the State." *Id.*[68]

Finally, Plaintiffs are unlikely to succeed on their First Amendment claim because they do not even try to show that the Act is substantially overbroad. "Overbreadth is 'strong medicine' that courts should employ sparingly and only as a last resort." *Cheshire Bridge Holdings, LLC v. City of Atlanta*, 15 F.4th 1362, 1370 (11th Cir. 2021) (cleaned up). An overbreadth plaintiff must "show that the overbreadth of the challenged provisions is substantial, not only in an absolute sense, but also relative to their plainly legitimate sweep." *Id.* (cleaned up). Plaintiffs "bear the burden of demonstrating from the text of the challenged provisions and from actual fact that a substantial number of instances exist in which the provisions cannot be applied constitutionally." *Id.* at 1370-71 (cleaned up). "The mere fact that one can conceive of some impermissible applications of a statute is not sufficient to render it susceptible to an overbreadth challenge." *Fleury*, 20 F.4th at 1362 (cleaned up). "Perfection is not required to survive an overbreadth challenge—a law that shields most protected activity is permissible." *Cheshire Bridge*, 15 F.4th at 1378

Here, "the statute does not target speech; rather, it targets conduct." *Fleury*, 20 F.4th at 1363. In that circumstance, courts generally "decline[] to employ the

[68] In *Brandt v. Rutledge*, the district court focused on a provision expressly prohibiting referrals. 551 F. Supp. 3d 882, 893 (E.D. Ark. 2021). The law here has no such provision.

'strong medicine' of overbreadth." *Id.* Plaintiffs do not *mention* the overbreadth doctrine, much less try to carry their burden of showing overbreadth. Their examples (Br., Doc. 8 at 43) either misunderstand the Act's causation requirement or involve unprotected speech that causes criminal conduct. In other words, they have not identified a *single* unconstitutional application, much less a substantial number. Plaintiffs are not likely to succeed on their First Amendment claim.

V. Plaintiffs' Preemption Claim Fails.

Section 1557 of the ACA provides that "an individual shall not, on the ground prohibited under" various civil rights statutes "be excluded from participation in, be denied the benefits of, or be subjected to discrimination under, any health program or activity, any part of which is receiving Federal financial assistance…." 42 U.S.C. § 18116(a). The only incorporated statute relevant here is Title IX, which generally prohibits educational programs from discriminating "on the basis of sex." 20 U.S.C. § 1681. Plaintiffs contend that Alabama's Act will cause healthcare providers to violate Section 1557, and that the federal law thus preempts the Act. But this argument fails several times over because (1) Plaintiffs have no cause of action by which to raise it, (2) the Act does not require unlawful discrimination, and (3) even if it did, there is still no preemption. Indeed, Plaintiffs have cited no case in which a court has found preemption based on either Section 1557 or the non-discrimination funding provisions it cross-references.

First, this claim fails because Congress never gave Plaintiffs a right to raise it. Plaintiffs purport to state a "Preemption" claim, Compl., Doc. 1 at 30, presumably invoking the Constitution's Supremacy Clause. But "the Supremacy Clause is not the source of any federal rights, and certainly does not create a cause of action." *Armstrong v. Exceptional Child Ctr.*, 575 U.S. 320, 324-25 (2015) (internal quotation marks and citations omitted). Thus, Plaintiffs must look to Section 1557 itself. But while Section 1557(a) provides that "[t]he enforcement mechanisms provided for and available under … title IX … shall apply for purposes of violations of" Section 1557's nondiscrimination bar, 42 U.S.C. § 18116(a), that provision does not authorize this suit. Title IX provides only an implied cause of action, and when the Supreme Court recognized that cause of action, it spoke only of a "private cause of action for victims of the prohibited discrimination." *Cannon v. Univ. of Chicago*, 441 U.S. 677, 703 (1979). Thus, Title IX's private cause of action allows a victim of discrimination in education to sue the government actor that discriminated, and Section 1557 (at most) allows a patient to sue a healthcare provider that discriminates in the provision of healthcare. But there is no reason to think that Section 1557 gives patients, much less healthcare providers, the right to sue law enforcement officials like the Defendants here, who do not operate the "health program or activity" from which patients fear they will be excluded. 42 U.S.C. § 18116(a).

Second, Plaintiffs' argument hinges on their claim that the Act constitutes "discrimination based on sex." Br., Doc. 8 at 50. As shown above, that is wrong. The Act does not discriminate based on sex or transgender status. It regulates certain experimental procedures used for transitioning a child's gender. Both males and females may or may not seek those procedures. And both those who identify as transgender and those who do not may or may not seek those procedures. Because the Act does not discriminate based on sex or transgender status, Plaintiffs' preemption argument fails out of the gate.

Third, the Act does not discriminate based on sex as that term is used in Title IX for an independent reason: Title IX's prohibition on sex discrimination does not apply to discrimination based on transgender status. At the time of enactment, Title IX's reference to "sex" was universally "understood as referring to the traditional biological indicators that distinguish a male from a female, not the person's internal sense of being male or female, or their outward presentation of that internally felt sense." *Grimm v. Gloucester Cnty. Sch. Bd.*, 972 F.3d 586, 632 (4th Cir. 2020) (Niemeyer, J., dissenting); *see Bostock*, 140 S. Ct. at 1738 (focusing on "the ordinary public meaning of [a statute's] terms at the time of its enactment"). "[T]hat the word 'sex' in Title IX refers to biological characteristics, not gender identity, becomes all the more plain when one considers the privacy concerns that explain why, in the first place, Title IX and its regulations allow schools to provide separate living facilities,

restrooms, locker rooms, and shower facilities 'on the basis of sex.'" *Grimm*, 972 F.3d at 633 (Niemeyer, J., dissenting); *Adams*, 3 F.4th at 1321 (Pryor, C.J., dissenting) ("[C]ontext matters"). Just like Alabama's Act, then, Title IX recognizes that there are biological differences between the sexes. It would turn Title IX upside down to say that gender identity is equivalent to the sex discrimination it forbids. Title IX cannot mean that states must turn a blind eye to biological realities.

Last, in any event, Plaintiffs misunderstand preemption law. They assert only "conflict preemption" but fail to acknowledge that "[a] party asserting conflict preemption faces a high bar": "In all pre-emption cases, and particularly in those in which Congress has legislated in a field which the States have traditionally occupied"—like health and safety—courts "start with the assumption that the historic police powers of the States were not to be superseded by the Federal Act unless that was the clear and manifest purpose of Congress." *Graham v. R.J. Reynolds Tobacco Co.*, 857 F.3d 1169, 1186 (11th Cir. 2017) (en banc). That is because "[s]tate governments retain their historic police powers to protect public health." *Id.* at 1190.

"Thus, if the statute's terms can be read sensibly not to have a pre-emptive effect, the presumption controls and no pre-emption may be inferred." *Fla. E. Coast Ry. Co. v. City of W. Palm Beach*, 266 F.3d 1324, 1328 (11th Cir. 2001) (cleaned up). And "[w]hen Congress has considered the issue of pre-emption and has included in the enacted legislation a provision explicitly addressing that issue, and when that

provision provides a reliable indicium of congressional intent with respect to state authority, there is no need to infer congressional intent to pre-empt state laws from the substantive provisions of the legislation." *Graham*, 857 F.3d at 1189.

Here, Congress expressly provided in the ACA a statement of its preemptive intent, entitled "No interference with State regulatory authority": "Nothing in this title shall be construed to preempt any State law that does not prevent the application of the provisions of this title." 42 U.S.C. § 18041(d).

Both this express admonition and the default presumption against preemption shed light on Section 1557. That section places conditions on "Federal financial assistance" for "any health program or activity." 42 U.S.C. § 18116(a); *see Cummings v. Premier Rehab Keller, PLLC*, No. 20-219, 2022 WL 1243658, at *3 (U.S. Apr. 28, 2022) (explaining that Section 1557 "prohibit[s] recipients of federal financial assistance from discriminating based on" certain grounds). But Section 1557 does not create a federal *right* to those funds if the conditions are followed. Plaintiffs' various phrasings of the supposed conflict elide this point. For instance, they say that "states may not impose criminal penalties or hold a civil defendant liable under state law for conduct federal law requires." Br., Doc. 8 at 49 (cleaned up). But federal law does not *require* them or give them a *right* to receive federal monies.

By analogy, consider the Eleventh Circuit's en banc decision in *Graham*. There, cigarette manufacturers argued for preemption of state law based on their

cigarettes' compliance with "a handful of federal labeling requirements." *Id.* at 1191. The court rejected this argument, distinguishing between "a rule that requires a certain label when and if cigarettes are sold" and "Congress establish[ing] a *right* to sell cigarettes." *Id.* at 1188, 1191 (emphasis added). States could impose limitations on cigarette labels—or even "mak[e] it a crime to sell cigarettes"—notwithstanding compliance with federal labeling law. *Id.* at 1190.

The same analysis applies here. Section 1557 does not give the Doctor Plaintiffs any rights at all. It merely imposes "a condition on the grant of federal moneys." *Cummings*, 2022 WL 1243658, at *5. A state law regulating Plaintiffs cannot impede a federal right that they do not have. Because "the statute's terms can be read sensibly not to have a pre-emptive effect, the presumption [against preemption] controls and no pre-emption may be inferred." *Fla. E. Coast Ry. Co.*, 266 F.3d at 1328.

Ignoring this text, Plaintiffs seek refuge in their claim that "the overall goal of the ACA" is "to broaden access to healthcare in the United States." Br., Doc. 8 at 52. But "[a]s the Supreme Court and [the Eleventh Circuit] have explained, purpose-driven statutory interpretation at the expense of specific provisions ignores the complexity of the problems Congress is called upon to address and the dynamics of legislative action." *Myers v. TooJay's Mgmt. Corp.*, 640 F.3d 1278, 1286 (11th Cir. 2011) (cleaned up). Like every piece of legislation, the ACA is a compromise. It does not give healthcare providers who comply with its conditions on federal

funding an unfettered right to operate free of state regulation. In fact, its statutory command is the opposite. 42 U.S.C. § 18041(d) ("No interference with State regulatory authority"). And the Court's "job is to follow the text even if doing so will supposedly undercut a basic objective of the statute." *Villarreal v. R.J. Reynolds Tobacco Co.*, 839 F.3d 958, 969 (11th Cir. 2016) (cleaned up). Thus, for this and the other reasons above, Plaintiffs are not likely to succeed on their preemption claim.

VI. Plaintiffs' Challenge To The Entire Act Cannot Succeed.

Plaintiffs apparently demand "that this Court enjoin the State from implementing Act [sic]" *in toto*. Br., Doc. 8 at 58. This demand suffers from numerous flaws.

First, they make no argument whatsoever as to Section 5, which regulates educators. Their complaint is silent on the provision, and none of the Plaintiffs has established standing to challenge that provision. Nor does any Private Plaintiff appear to challenge (or establish standing to challenge) the Act's regulation of gender-transition surgeries. *See* Act § 4(a)(4)-(6).

Next, the Act requires every aspect of the Act to stand if any other "part, section, or subsection" "is held invalid." Act § 8. "Severability is a matter of state law," and "Alabama directs courts to strive to uphold acts of the legislature." *McGuire v. Strange*, 83 F. Supp. 3d 1231, 1270 (M.D. Ala. 2015) (cleaned up). Here, "the Alabama Legislature expressed its intention that [the Act's provisions be severable

through the inclusion of a severability clause." *Id*. Both Section 5 and the surgery regulations "can be given effect" alone, so they must "remain[] intact and in force." *McGuire*, 83 F. Supp. 3d at 1270 (cleaned up).

Last, Plaintiffs' facial challenge is unlikely to succeed. Despite focusing on the Act's application to a handful of individuals, Plaintiffs apparently seek facial invalidation. *See* Br., Doc. 8 at 58; Compl. Request for Relief, Doc. 1. But "[a] facial challenge to a legislative Act is, of course, the most difficult challenge to mount successfully." *United States v. Salerno*, 481 U.S. 739, 745 (1987). To succeed, Plaintiffs must show "that the law is unconstitutional in *all* of its applications." *Wash. State Grange v. Wash. State Republican Party*, 552 U.S. 442, 449 (2008).

Plaintiffs have not even attempted to meet this high bar. As shown above, Alabama has a compelling interest in promoting child safety, *e.g.*, *Ferber*, 458 U.S. at 756-57, and Plaintiffs' limited evidence about a handful of minors says nothing about the circumstances and appropriate treatments for all children in Alabama. Moreover, Plaintiffs focus on the supposed "safety and efficacy" of these experimental procedures "for treating gender dysphoria *in adolescents,*" Br., Doc. 8 at 34 (emphasis added), but the Act applies to and protects younger children too. And Plaintiffs' claims about adolescents depend on "appropriate[] identifi[cation], diagnos[is], and prescribed treatment." *Id.* At 28. So even on Plaintiffs' view, the Act would be constitutional in at least some applications—especially procedures

performed outside the alleged "protocols" hyped by Plaintiffs. For example, none of Plaintiffs' evidence supports giving cross-sex hormones to a 16-year-old girl who has not been diagnosed with gender dysphoria "for the [sole] purpose of attempting to alter [her] appearance of … her gender or sex." Act § 4(a). Because, at minimum, there are numerous constitutional applications of the Act, Plaintiffs cannot successfully mount a facial challenge.

VII. The Other Preliminary Relief Factors Favor The State.

Even if Plaintiffs could show a likelihood of success on the merits, they are not entitled to an injunction. First, Plaintiffs' inequitable conduct in shopping for judges instead of pursuing timely adjudication bars equitable relief. A temporary restraining order or preliminary injunction is extraordinary relief that cannot be granted in equity to parties who have abused the judicial process. Here, as detailed below, it would blink reality to pretend that Plaintiffs' counsel's conduct—filing duplicative lawsuits, agreeing to consolidation, then immediately dismissing the suits after assignment to this Court and telling the media they planned to "refile imminently"—is anything other than blatant manipulation of the judicial process. Those who engage in such misconduct are disentitled to equitable relief.

In any event, Plaintiffs have failed to clearly show that the other injunction factors are in their favor. Plaintiffs' delay in bringing suit undermines any claim of irreparable harm. The Doctor Plaintiffs certainly face no irreparable harm, merely a

potential loss of profits. Though Plaintiffs claim that minors will face distress if the Act's regulations go into effect, that claim ignores the evidence that not only do the prohibited procedures have no proven benefit, they inflict significant and potentially irreversible harm. The Act permits and indeed encourages other, widely accepted treatments for gender dysphoria. Should the Act be enjoined, untold numbers of children face lasting harm and irreversible damage to their bodies. This Court should not second-guess the Legislature's determination that these harms justify the Act.

A. Plaintiffs' Inequitable Conduct Bars Preliminary Relief.

This Court may deny preliminary relief based solely on Plaintiffs' inequitable conduct. A "contrivance to interfere with the judicial assignment process constitutes a threat to the orderly administration of justice." *In re BellSouth Corp.*, 334 F.3d 941, 959 (11th Cir. 2003). Plaintiffs' attorneys have been consumed by one goal from the outset, and it is *not* obtaining a timely adjudication of their motion to enjoin a duly enacted State law. It is shopping for the judge they want. Given their delay in moving for preliminary relief while they tried to manipulate the judicial assignment process, it is evident that they prefer no adjudication to a timely adjudication before this Court. That conduct forecloses preliminary equitable relief.

"Injunctive relief is an equitable remedy that is not available as a matter of right." *Williams v. Allen*, 496 F.3d 1210, 1212 (11th Cir. 2007). Rather, "[t]he grant of equitable relief, such as an injunction, is a matter of judicial discretion." *CNA Fin.*

Corp. v. Brown, 162 F.3d 1334, 1337 (11th Cir. 1998). In exercising that discretion, "[i]t is a bedrock principle of courts of equity that they may impose the substantive remedy of injunctive relief *only* when fundamental fairness and justice demand it." *Coral Springs St. Sys., Inc. v. City of Sunrise*, 371 F.3d 1320, 1340 (11th Cir. 2004).

Thus, "[e]quity must take into consideration" both "the State's strong interest in" enforcing its law and "attempts to manipulate the judicial process." *Gomez v. U.S. Dist. Ct. for N. Dist. of Cal.*, 503 U.S. 653, 654 (1992). A court's equitable powers "can never be exerted in behalf of one who has acted fraudulently or who by deceit or any unfair means has gained an advantage." *Coral Springs*, 371 F.3d at 1341. There is a "strong presumption against the grant of dilatory equitable relief." *Grayson*, 491 F.3d at 1326. "[F]ederal courts can and should protect States from dilatory or speculative suits." *Hill v. McDonough*, 547 U.S. 573, 584-85 (2006).

1. Plaintiffs Engaged in Dilatory, Manipulative Judge-Shopping.

The primary goal of Plaintiffs' counsel has not been a timely adjudication of their claims. It has been to manipulate the assignment process in an effort to find a judge they prefer. The first step in Plaintiffs' judge-shopping was to file in federal court. Kaitlin Welborn, an ACLU Alabama attorney who signed the parallel *Walker* complaint, gave a podcast interview on April 15 in which she was asked whether

litigation in Alabama "specifically presents" any "challenges."[69] She was blunt: "We can't go through the Alabama state courts. We can only go through federal court. In Alabama, where you have people, the likes of Roy Moore, who used to be on Alabama Supreme Court, that's really just not an option for us."[70]

The next step was to file near-identical complaints in two districts, enabling them to drop whichever one was assigned to a judge they disliked. *See Ladinsky v. Ivey*, No. 5:22-cv-447 (N.D. Ala. 2022 filed April 8, 2022); *Walker v. Marshall*, No. 22-cv-480 (M.D. Ala. filed April 11, 2022). This is a common judge-shopping tactic. *See, e.g.*, *In re Fieger*, 191 F.3d 451 (6th Cir. 1999) (table op.) (involving similar manipulation); *Barragan v. Clarity Servs., Inc.*, No. 22-cv-876, 2021 WL 1226537, at *7 (D. Nev. Mar. 31, 2021) (same); *Murray v. Sevier*, No. 92-1073-K, 1992 WL 75212, at *1 (D. Kan. Mar. 13, 1992) (same).

In a further effort to game the assignment process, the attorneys in the *Walker* case claimed it was "related" to an unrelated (closed) case presided over by Judge Thompson. *See Walker* Doc. 1-1. The Middle District's clerk office assigned the case to Chief Judge Marks. So before even moving for a TRO and preliminary injunction, the attorneys filed an extraordinary motion to reassign *Walker* to Judge

[69] What a Day Podcast, Defending Trans Youth in Alabama, https://podcasts.apple.com/us/podcast/defending-trans-youth-in-alabama/id1483692776?i=1000557682349 (April 15, 2022).
[70] *Id.*

Thompson, invoking the same closed case about Alabama's procedures for changing the sex designation on a driver's license. *Walker* Doc. 8; *see Walker* Doc. 17 at 1.

Chief Judge Marks ordered the parties to show cause why *Walker* should not be transferred to the Northern District, where *Ladinsky* had already been filed. *Walker* Doc. 3. The *Walker* Plaintiffs consented to the transfer and withdrew their motion to reassign the case to Judge Thompson. *Walker* Doc. 18. At 4:20 pm on April 15, all Plaintiffs consented to consolidation of the cases in the Northern District, where Judge Axon had been assigned *Ladinsky*. *See* Ex. 40, Decl. of Edmund G. LaCour Jr. at 3. *Ladinsky* Docs. 2, 11. Twenty-one minutes later, the consolidated cases were reassigned to Judge Burke. *Ladinsky* Doc. 16. Within two hours, each set of Plaintiffs' attorneys voluntarily dismissed their suit, the *Walker* Plaintiffs at 6:24 pm and the *Ladinsky* Plaintiffs 9 minutes later. *See Walker* Doc. 24 at 2-3.

Plaintiffs' lead attorney here quickly reassured the media: "We do plan to refile imminently."[71] Sure enough, a few days later, the last step of Plaintiffs' judge-shopping finally arrived: refiling in the Middle District in an attempt to obtain a new judge. All 17 attorneys listed are the same as on the *Ladinsky* complaint. The complaint is nearly identical, other than apparently new plaintiffs, adding the throwaway

[71] Paul Gattis, *Lawsuits seeking to overturn new Alabama transgender law dropped, could be refiled*, AL.com, https://www.al.com/news/2022/04/lawsuits-seeking-to-overturn-new-alabama-transgender-law-dropped-could-be-refiled.html?outputType=amp (April 16, 2022).

First Amendment claim, and moving the lead plaintiff to a role as expert.[72] Plaintiffs' attorneys did not ask for preliminary relief until April 21.

Plaintiffs and their attorneys obviously engaged in judge-shopping. They were prepared to proceed with both cases and had agreed to consolidation, then suddenly decided to drop both lawsuits when the case was assigned to this Court. They then told the media that they would "refile imminently." As this Court explained, "At the risk of stating the obvious, Plaintiffs' course of conduct could give the appearance of judge shopping—'a particularly pernicious form of forum shopping'—a practice that has the propensity to create the appearance of impropriety in the judicial system." *Walker* Doc. 24 at 3; *cf. Nat'l Treasury Emps. Union v. IRS*, 765 F.2d 1174, 1177 (D.C. Cir. 1985) ("The semblance of judge shopping … is also a concern when a litigant discontinues a fray, only to start over again on another day."); *Telesco v. Telesco Fuel & Masons' Materials, Inc.*, 765 F.2d 356, 360 n.4 (2d Cir. 1985) ("When [plaintiffs] see a storm brewing in the first court, they may try to weigh anchor and set sail for the hopefully more favorable waters of another district.").

Plaintiffs might invoke the excuse of additional plaintiffs and a new claim. As an initial matter, one wonders whether Plaintiffs' attorneys and counsel for the *Walker* Plaintiffs received a flood of new plaintiffs (or refusals to proceed from

[72] Likewise, the *Walker* plaintiffs handed off their expert to proposed intervenor United States. *Compare* Doc. 62-2, *with Walker* Doc. 10-3.

existing plaintiffs) on April 15 between 4:20 pm (when they consented to consolidation) and 6:24 pm (when they dismissed after assignment to this Court). Regardless, Plaintiffs had several easier and more obvious routes to add or change plaintiffs. They had already taken one such route: filing another lawsuit, which could then be consolidated as appropriate with existing lawsuits; or joinder, *see* Fed. R. Civ. P. 20(a); or amending their complaint, *see* Fed. R. Civ. P. 15(a).

Thus, dismissal and refiling contradicts Plaintiffs' professed goal of obtaining immediate injunctive relief, for it inevitably delays adjudication. Only one explanation exists for their conduct: judge-shopping. "[T]o ignore the probability that the attorneys' actions in voluntarily withdrawing the case and instantly refiling were directed at obtaining a different judge" "would be to blink reality." *Vaqueria Tres Monjitas, Inc. v. Rivera Cubano*, 230 F.R.D. 278, 279 (D.P.R. 2005) (cleaned up); *cf. Alvarado v. Bank of Am., N.A.*, No. 08-cv-2862, 2009 WL 720875, at *4 (E.D. Cal. Mar. 17, 2009) (same); *Oxbow Energy, Inc. v. Koch Indus., Inc.*, 686 F. Supp. 278, 283 (D. Kan. 1988) (finding "at least some indication that the new plaintiffs here chose to stay out of the [earlier] action solely in order to provide an opportunity to bring a new action").

2. Plaintiffs' Misconduct Precludes Equitable Relief.

To preserve the integrity of the federal judiciary, this Court must not let pass Plaintiffs' counsel's sustained effort at judge-shopping. "[P]ermitting such

manipulation would bring the judicial system itself into disrepute and would permit unscrupulous litigants and lawyers to thwart our system of judicial administration." *BellSouth*, 334 F.3d at 959-60 (cleaned up). As shown, Plaintiffs have not only engaged in dilatory conduct, the goal of the conduct was "to manipulate the judicial process." *Gomez*, 503 U.S. at 654. "Such conduct is the very antithesis of the equitable, diligent, good-faith, vigilant conduct required of a litigant seeking equitable relief." *Arthur*, 574 F. Supp. 2d at 1256. Any irreparable harm "is harm of [Plaintiffs' counsel's] own creation." *Id*. Thus, Plaintiffs are not entitled to preliminary equitable relief, regardless of any other factor.

B. The Other Injunction Factors Are in the State's Favor.

Plaintiffs' motion also fails because they have not shown a likelihood of irreparable injury. "[A] party's failure to act with speed or urgency in moving for a preliminary injunction necessarily undermines a finding of irreparable harm." *Wreal, LLC v. Amazon.com, Inc.*, 840 F.3d 1244, 1248 (11th Cir. 2016). As shown, instead of timely seeking relief, Plaintiffs dallied, playing at judge-shopping instead of seeking adjudication of their claims. Even if that misconduct is not alone enough to deny Plaintiffs' motion, it weighs heavily against any finding of irreparable harm.

The Doctor Plaintiffs say they will be irreparably harmed because they may be subject to "criminal prosecution and penalties." Br., Doc. 8 at 55. But "the cost, anxiety, and inconvenience of having to defend against a single criminal

prosecution" is not "considered 'irreparable.'" *Younger v. Harris*, 401 U.S. 37, 46 (1971). "No citizen or member of the community is immune from prosecution, in good faith, for his alleged criminal acts." *Id.* The Doctor Plaintiffs claim no injury "other than that incidental to every criminal proceeding." *Id.* at 47. Their loss of profits from performing experimental procedures is not an irreparable harm. *See United States v. Jefferson County*, 720 F.2d 1511, 1520 (11th Cir. 1983).

Plaintiffs say that the minors here will be irreparably harmed because they cannot receive "necessary medical care," without which they will allegedly "suffer anxiety, depression, and severe psychological distress" (and their parents will allegedly suffer similarly). Br., Doc. 8 at 53. The problem with this argument is that it presumes gender-transition procedures would relieve any distress experienced by these children. But as shown exhaustively above, there is no evidence that this is true. For one thing, there is scientifically valid evidence suggesting just the opposite: that gender-transition procedures can lead to more significant distress and other mental-health problems. *Supra* at pp. 33-49. And because practitioners cannot distinguish those children whose transgender identity will desist from that those whose will persist, there is no way to assess the costs or supposed benefits of gender-transition procedures for any particular child. Cantor ¶¶ 39-41. In other words, even assuming gender-transition procedures could theoretically benefit *some* child,

practitioners have no way of knowing *ex ante* whether gender-transition procedures will benefit a *particular* child experiencing gender incongruity.

Further, to the extent that Plaintiffs are concerned about "abrupt" shifts in medicine dosage (Br., Doc. 8 at 57), the Act permits appropriate and necessary medical care, as long as the purpose of the procedure is not "to alter the appearance of or affirm the minor's perception of his or her gender or sex." Act § 4(a). Thus, prescribing medications to safely *end* a gender-transition procedure does not fall within the Act's prohibition.

Plaintiffs say that they may "resume" normal puberty absent the experimental procedures regulated here. Br., Doc. 8 at 54. But Plaintiffs cite no authority for the proposition that a law irreparably harms children by ensuring their sexual and reproductive development proceeds biologically. Nor do they cite any authority supporting the idea that biological pubertal development is so harmful that it outweighs the consequences of a preliminary injunction: subjecting Alabama children to ideologically driven procedures that could inflict irreversible damage on their bodies. Beyond that, data indicates that gender-transition procedures could actually increase the risk of suicide. *See supra* at pp. 46-49.

For related reasons, the last two factors—balance of equities and public interest—are in the State's favor. "[W]here the government is the party opposing the preliminary injunction, its interest and harm merge with the public interest." *Swain*

v. Junior, 958 F.3d 1081, 1091 (11th Cir. 2020). First, "[a]ny time a State is enjoined by a court from effectuating statutes enacted by representatives of its people, it suffers a form of irreparable injury." *Maryland v. King*, 567 U.S. 1301, 1301 (2012) (Roberts, C.J., in chambers) (cleaned up); *see Hand v. Scott*, 888 F.3d 1206, 1214 (11th Cir. 2018) (holding that State "would be harmed if it could not apply its own laws"). Plaintiffs claim that this Court can disregard this interest because they've argued that the Act is unconstitutional. Br., Doc. 8 at 57. But that approach would make the harm inquiry irrelevant whenever a party seeks to preliminarily enjoin a state law on constitutional grounds, because the likelihood-of-success inquiry would always decisively resolve the irreparable-harm inquiry. The Eleventh Circuit has squarely rejected the proposition that claimed Equal Protection violations "always constitute[] irreparable harm." *Siegel*, 234 F.3d at 1177; *id.* at 1177-78.

Second, for all the reasons given above justifying this Act, a failure to allow it to take effect would harm children. Granting a preliminary injunction will mean that more children in Alabama will undergo gender-transition procedures. More children will begin taking puberty blockers and experience the loss of bone density and the associated potential for permanently immature sex organs. And more children will go on cross-sex hormones and become permanently sterile. A preliminary injunction will irreparably damage those children's lives.

Finally, the purpose of a preliminary injunction—preservation of the status quo—supports the State. Whenever a plaintiff seeks to enjoin duly enacted legislation, "the status quo is that which the People have wrought, not that which unaccountable federal judges impose upon them." *Planned Parenthood of Blue Ridge v. Camblos*, 116 F.3d 707, 721 (4th Cir. 1997) (Luttig, J., staying injunction in published, single-judge order).

In the face of medical uncertainty, the prudent path is to allow the State's law to take effect, given the irreversible consequences of allowing practitioners to perform experimental gender-transition procedures on Alabama's children. Allowing the Act to take effect would not mean that children "will be unable to obtain" "medical treatment of gender dysphoria." Br., Doc. 8 at 54. Alabama has not prohibited treatment of gender dysphoria in minors. Scientifically valid evidence supports other treatment models, including the so-called "watchful waiting" model and the use of psychotherapy to address other mental-health problems. The Act allows such treatment. This Court is not in a position to "second-guess" the "legislative judgment" that children of our State face irreparable harm from the alternative unproven, experimental medical procedures proscribed by the Act. *Ferber*, 458 U.S. at 758.

VIII. Plaintiffs Are Not Entitled To A Universal Injunction.

Plaintiffs appear to demand that the Court issue a universal injunction preventing "the State from implementing Act [sic]" against both Plaintiffs and non-

parties. Br., Doc. 8 at 58. But this is not a class action, and Plaintiffs offer no justification for the Court to depart from its narrow authority to adjudicate an Article III "case or controversy." "The fundamental principle of equity guiding the court" when it issues an injunction "is that injunctive relief should be limited in scope to the extent necessary to protect the interests *of the parties*." *Ga. Advoc. Off. v. Jackson,* 4 F.4th 1200, 1209 (11th Cir. 2021) (cleaned up, emphasis added). "When a district court fails to follow this principle and drafts an unnecessarily broad injunction, the district court abuses its discretion." *Id*. Thus, if the Court were to find that these Plaintiffs have proven their entitlement to a preliminary injunction, only these Plaintiffs should receive relief.

Any other course would be inequitable, especially since it would benefit non-parties like Morissa Ladinsky. Dr. Ladinsky appears to have strategically abandoned her own suit and changed her label to "expert" in furtherance of judge-shopping maneuvers. Because she and her former co-plaintiffs strategically abandoned their case, they should receive no equitable relief from this one.

IX. A Bond Would Be Required Under Rule 65.

Last, if this Court provides preliminary relief of any form, the Physician Plaintiffs should be required to post a bond. The plain text of Rule 65(c) provides that "[t]he court may issue a preliminary injunction or a temporary restraining order only if the movant gives security in an amount that the court considers proper." "[T]he

bond is treated by most courts as a contract by which the amount posted is the consideration or 'price' paid for a wrongful injunction." *Black Warrior Riverkeeper, Inc. v. U.S. Army Corps of Engineers*, 297 F.R.D. 633, 635 (N.D. Ala. 2014). "Accordingly, the judge usually will fix security in an amount that covers the potential incidental and consequential costs as well as either the losses the unjustly enjoined or restrained party will suffer during the period the party is prohibited from engaging in certain activities or the complainant's unjust enrichment caused by his adversary being improperly enjoined or restrained." 11A Wright & Miller, *Federal Practice & Procedure* § 2954 (3d ed.); *e.g.*, *Hoechst Diafoil Co. v. Nan Ya Plastics Corp.*, 174 F.3d 411, 421 n.3 (4th Cir. 1999).

Here, the most straightforward calculation is the amount by which the Physician Plaintiffs will be unjustly enriched should they be allowed to administer profitable (and illegal) medical procedures to kids. The State proposes an amount of $1 million per Physician Plaintiff. If they object to this amount, discovery is warranted before an amount is decided or an injunction contingent on the bond issued.[73]

CONCLUSION

This Court should deny the motion for preliminary relief.

[73] Plaintiffs' case (*City of Atlanta v. Metro. Atlanta Rapid Transit Auth.*, 636 F.2d 1084 (5th Cir. Unit B 1981), Mot., Doc. 7 at 4) is irrelevant, and not just because the Doctor Plaintiffs have a pecuniary interest in this litigation. As Judge Acker explained, *City of Atlanta* involved a "technical shortcoming" that was "innocuous" because "the TRO would be in effect for only eight more days." *Black Warrior Riverkeeper*, 297 F.R.D. at 636 (cleaned up).

Respectfully submitted,

Steve Marshall
Attorney General

s/ Edmund G. LaCour Jr.
Edmund G. LaCour Jr. (ASB-9182-U81L)
Solicitor General

A. Barrett Bowdre (ASB-2087-K29V)
Thomas A. Wilson (ASB-1494-D25C)
Deputy Solicitor General

James W. Davis (ASB-4063-I58J)
Deputy Attorney General

Benjamin M. Seiss (ASB-2110-O00W)
Assistant Attorney General

OFFICE OF THE ATTORNEY GENERAL
STATE OF ALABAMA
501 Washington Avenue
P.O. Box 300152
Montgomery, Alabama 36130-0152
Telephone: (334) 242-7300
Fax: (334) 353-8400
Edmund.LaCour@AlabamaAG.gov
Barrett.Bowdre@AlabamaAG.gov
Thomas.Wilson@AlabamaAG.gov
Jim.Davis@AlabamaAG.gov
Ben.Seiss@AlabamaAG.gov

Counsel for Defendants

Christopher Mills
(SC Bar No. 101050)
(*pro hac vice* motion pending)

SPERO LAW LLC
557 East Bay St. #22251
Charleston, SC 29451
Telephone: (843) 606-0640
cmills@spero.law

MAY 2, 2022

CERTIFICATE OF SERVICE

I certify that I electronically filed this document using the Court's CM/ECF system on May 2, 2022, which will serve all counsel of record.

s/ Edmund G. LaCour Jr.
Counsel for Defendants

No. 22-11707

UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT

PAUL A. EKNES-TUCKER, et al.,
Plaintiffs-Appellees,

&

UNITED STATES OF AMERICA
Intervenor-Plaintiff-Appellee,

v.

GOVERNOR OF THE STATE OF ALABAMA, et al.,
Defendants-Appellants.

On Appeal from the United States District Court
for the Middle District of Alabama
Case No. 2:22-cv-184-LCB

APPELLANTS' APPENDIX VOLUME X OF XIII

Christopher Mills
SPERO LAW LLC
557 East Bay St.,
#22251
Charleston, SC 29451
(843) 606-0640
cmills@spero.law

Steve Marshall
Attorney General
Edmund G. LaCour Jr.
Solicitor General
A. Barrett Bowdre
Thomas A. Wilson
Deputy Solicitors General
James W. Davis
Deputy Attorney General
Benjamin M. Seiss
Assistant Attorney General
STATE OF ALABAMA
OFFICE OF THE ATTORNEY GENERAL
501 Washington Ave.
Montgomery, AL 36130
(334) 242-7300
Edmund.LaCour@AlabamaAG.gov

July 5, 2022

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DOC. 78-41

Patient Information for Informed Consent
FEMINIZING MEDICATIONS FOR TRANSGENDER CLIENTS
Minors and Parents/Guardians
University of Alabama at Birmingham Pediatric Endocrinology
Multidisciplinary Gender Health Team

Before using medications to transition and feminize, you and your parents or guardians need to know the possible advantages, disadvantages and risks of these medications. We have listed them here for you. It's important that you understand all of this information before you begin taking these medications.

Please read the following with your parent or guardian. Once your questions or concerns are addressed, and you have decided to proceed with the medication(s), both you and your parent or guardian will need to sign this information and consent form.

We are happy to answer any questions you have.

What are the different medications that can feminize my appearance?

Part of transition for many transgender people involves taking hormones. For hormone treatment to be most effective, transgender girls and women take not only estrogens (female hormones), but also medicines to block their body from producing or utilizing testosterone (male hormones).

Different forms of the hormone estrogen are used to feminize appearance in transgender females. Estrogen can be given as an injection, weekly or every other week, as a pill, daily or twice a day, or as a patch, which is changed every three or four days.

Medications that block the production or effects of testosterone are called androgen blockers. Androgen is another term for male sex hormones. Spironolactone is the androgen blocker that is most commonly used in the United States. Other medicines are sometimes used, but because spironolactone is relatively safe, inexpensive, and effective to block testosterone, it is the primary androgen blocker used for transgender women.

Every medication has risks, benefits, and side effects that are important to understand before starting. The effects and side effects of medicines used for transition need to be monitored with laboratory studies and regular visits to your provider to make sure that there are no negative effects on your body.

Both the medicines that you take, as well as the process of transitioning can affect your mood. While trans women are relieved and happy with the changes that occur, it is important that you are under the care of a gender-qualified therapist while undergoing transition. The therapist can work with you, your family and friends and your school staff.

Estrogen can cause blood clots. We must be careful that you are not at risk to develop a blood clot. Who should not take estrogen?

Estrogen should not be used by anyone who has a history of

- an estrogen-dependent cancer
- a disorder that makes them more likely to get blood clots that could travel to the lungs (unless they are also taking blood thinners and are followed by a specialist)

Estrogen should be used with caution and only after a full discussion of risks by anyone who

- has a strong family history of breast cancer or other cancers that grow quicker when estrogens are present
- has uncontrolled diabetes
- has heart disease
- has chronic hepatitis or other liver disease
- has uncontrolled high cholesterol
- has migraines or seizure
- is obese
- smokes cigarettes

Both you and your parent or guardian should initial and date each statement on this form to show that you and your parent or guardian understand the benefits, risks, and changes that may occur from taking these medications.

Effects of Feminizing Medications

_____ _____I know that estrogen or anti-androgens – or both – may be prescribed to feminize my appearance.

_____ _____I know it can take several months or longer for the effects to become noticeable. I know that no one can predict how fast – or how much – change will happen.

_____ _____I know that if I am taking estrogen I will develop breasts.

- I know it takes several years for breasts to get to their full size.
- I know the breasts will remain, even if I stop taking estrogen.
- I know I might have a milky discharge from my nipples (called galactorrhea). If I do, I know I should check it out with my healthcare provider because it could be caused by the estrogen or by something else.
- I know that while we do not know the exact risk the risk, my risk of breast cancer may be increased to as high as if I had been born female
- I know that I should take care of my breasts like every other woman. This includes annual breast exams from my health provider, and when I am older, regular mammograms.

_____ _____I know that the following changes are usually not permanent — they are likely to go away if I stop taking the medicines.

- I know my body hair will become less noticeable and will grow more slowly. But it won't stop completely, even if I take the medicines for years.
- I know I will probably have less fat on my abdomen and more on my buttocks, hips, and thighs. It will be redistributed to a more female shape — changing from "apple" shape to "pear" shape.
- I know that if I have the predisposition to have male pattern baldness it may start later than it would have, but may not stop completely.
- If I stop taking hormones I may lose my hair faster than if I hadn't taken hormones.
- I know I may lose muscle and strength in my upper body.
- I know that my skin may become softer.

_____ _____I know that my body will make less testosterone (an androgen, or male hormone). This may affect my sex life in different ways and future ability to cause a pregnancy:

- I know my sperm may no longer get to full maturity. This could make me less able to cause a pregnancy. I also know that there is a small risk that I might never produce mature sperm again. But I know that it's also possible that my sperm could still mature even while I am taking hormones. So, I know that I might get someone pregnant if we have vaginal intercourse and we don't use birth control.
- The options for sperm banking have been explained to me.
- I know that my testicles may shrink down to half their size. Even so, I know that they are part of my body and that I need to take care of them unless I have surgery to remove them. This means that I will need regular checkups for them.
- I know that I won't have as much semen when I ejaculate.
- I know it is likely that I won't have erections upon waking as often as before, and it is likely that I will have fewer spontaneous erections.
- I know I may not be able to achieve or maintain an erection for penetrative sex.
- I know that I may want to masturbate less or have sex less, and may find it harder to ejaculate when I do.
- I know this treatment may (but is not assured to) make me permanently unable to make a woman pregnant.

_____ _____I know that some parts of my body will not change much by using these medicines.

- I know the hair of my beard and mustache may grow more slowly than before. It may become less noticeable, but it will not go away unless I have treatments like electrolysis.
- I know the pitch of my voice will not rise, and my speech patterns will not become more like a woman's.
- I know my Adam's apple (called the laryngeal prominence) will not shrink.
- Although these medicines can't make these changes happen, there are other treatments that may be helpful.

_____ _____ I know that there may be mood changes with these medicines. I agree to continue therapy with a qualified therapist.

_____ _____I know if I have any concerns about these issues, you can make referrals for me to help me explore other treatment options.

Risks of Feminizing Medications

_____ _____I know that the side effects and safety of these medicines are not completely known. There may be long-term risks that are not yet known.

_____ _____I know not to take more medicine than I am prescribed. I know it increases health risks. I know that taking more than I am prescribed won't make changes happen more quickly or more significantly.

_____ _____ I know these medicines may damage the liver and may lead to lead to liver disease. I know I should be checked for possible liver damage as long as I take them.

_____ _____I know these medicines cause changes that other people will notice. Some transgender people have experienced discrimination because of this. I know my clinician can help me find advocacy and support resources.

Risks of Estrogen

_____ _____I know that taking estrogen increases the risk of blood clots or problems with blood vessels that can result in

- chronic problems with veins in the legs
- heart attack
- pulmonary embolism – blood clot to the lungs – which may cause permanent lung damage or death
- stroke, which may cause permanent brain damage or death

_____ _____I know that the risk of blood clots is much worse if I smoke cigarettes. I know the danger is so high that I should stop smoking completely if I start taking estrogen. I know that I can ask my clinician for advice about how to stop smoking.

_____ _____ I know taking estrogen can increase the deposits of fat around my internal organs. This can increase my risk for diabetes and heart disease.

_____ _____I know taking estrogen can raise my blood pressure. I know that if it goes up, my clinician can work with me to try to control it with diet, lifestyle changes, and/or medication.

_____ _____I know that taking estrogen increases my risk of getting gallstones. I know I should talk with my clinician if I get severe or long-lasting pain in my abdomen.

_____ _____I know that estrogen can cause nausea and vomiting. I know I should talk with my clinician if I have long-lasting nausea or vomiting.

_____ _____I know that estrogen can cause migraines or make them worse if I already have them. I know I should talk with my clinician if I have headaches or migraines often or if the pain is unusually severe.

_____ _____I know that it is not yet known if taking estrogen increases the risk of prolactinomas. These are non-cancerous tumors of the pituitary gland. I know they are not

usually life threatening, but they can damage vision and cause headaches if they are not treated properly. I know that changes in vision, headaches that are worse when I wake up in the morning, and milky discharge from my nipples can be signs of a prolactinoma, and I should talk to my health care provider if I develop these symptoms. There is a blood test that can check for this.

_____ _____I know that I am more likely to have dangerous side effects if

- I smoke.
- I am overweight.
- I have a personal or family history of blood clots.
- I have a personal or family history of heart disease and stroke.
- My family has a history of breast cancer.

Risks of Androgen Antagonists (Spironolactone)

_____ _____I know that spironolactone affects the balance of water and salts in the kidneys. This may

- Increase the amount of urine I produce, making it necessary to urinate more frequently.
- Increase thirst.
- Rarely, cause high levels of potassium in the blood, which can cause changes in heart rhythms that may be life-threatening.
- Reduce blood pressure.

_____ _____I know some androgen antagonists make it more difficult to evaluate test results for cancer of the prostate. This can make it more difficult to check up on prostate problems. I know that if I am over 50, I should discuss appropriate prostate cancer screening with my care provider. I know that even if I have genital sex reassignment surgery the prostate is not usually removed.

Prevention of Medical Complications

_____ _____I agree to take feminizing medications as prescribed. And I agree to tell my care provider if I have any problems or am unhappy with the treatment.

_____ _____I know that the dose and type of medication that's prescribed for me may not be the same as someone else's.

_____ _____I know I need periodic physical exams and blood tests to check for any side effects.

_____ _____I know that in addition to periodic checks from my provider, I must also treat my body with respect. This means that paying attention and talking to my provider if I develop any symptoms that might be side effects from medicines. This also means keeping my partners and myself safe, when and if I choose to have sex with others, by using condoms or methods to keep me safe from sexually transmitted infections (STIs).

_____ _____I know that feminization medications can interact with other drugs and prescribed and over the counter medicines. These include alcohol, diet supplements, herbs, other hormones, and street drugs. This kind of interaction can cause dangerous complications. I know that I need to prevent complications because they can be life threatening. That's why I need to be honest with my provider about whatever else I take. I also know that I will continue to get medical care here no matter what I share about what I take.

_____ _____I know that it can be risky for anyone with certain conditions to take these medicines. I agree to be evaluated if my clinician thinks I may have one of them. Then we will decide if it's a good idea for me to start or continue using them.

_____ _____I know that I should stop taking estrogen two weeks before any surgery or when I may be immobile for a long time (for example, if I break my leg and am in a cast).
This will lower the risk of getting blood clots. I know I can start taking it again a week after I'm back to normal or when my clinician says it's okay.

_____ _____ I know that even if I have to stop my estrogens, I may still be able to take the testosterone blockers that I am on, to help prevent the effects of my testicles producing testosterone again.

_____ _____I know that using these medicines to feminize is an off-label use. I know this means it is not approved by the Food and Drug Administration (FDA). I know that the medicine and dose that is recommended for me is based on the judgment and experience of my health care provider and the best information that is currently available in the medical literature.

_____ _____I know that I can choose to stop taking these medicines at any time. I know that if I decide to do that, I should do it with the help of my clinician. This will help me make sure there are no negative reactions. I also know my clinician may suggest that I cut the dose or stop taking it at all if certain conditions develop. This may happen if the side effects are severe or there are health risks that can't be controlled.

Alternatives

There are alternatives to using feminizing medicines to help people appear more feminine. Some transgender people choose to not take hormones or have surgery and may only socially transition. If you are interested in alternatives, talk with your health care provider about your options.

Our signatures below confirm that

- My clinician has talked with me and my parents or guardian about
  - the benefits and risks of taking feminizing medication
  - the possible or likely consequences of hormone therapy
  - potential alternative treatments
- I understand the risks that may be involved.
- I know that the information in this form includes the known effects and risks. I also know that there may be unknown long-term effects of risks.
- I have had enough opportunity to discuss treatment options with my clinician.
- All of my questions have been answered to my satisfaction.
- I believe I know enough to give informed consent to take, refuse, or postpone therapy with feminizing medications.

Based on all this information

_____ I want to begin taking estrogen.

_____ I want to begin taking androgen antagonists (e.g., spironolactone).

_____ I do not wish to begin taking feminizing medication at this time.

_____ _____
Patient Signature Date

_____ _____
Signature of Parent or Guardian Date

_____ _____
Prescribing clinician signature Date

Your health is important to us. If you have any questions or concerns please call us at (205) 638 9107. We are happy to help you.

Client Information for Informed Consent

TESTOSTERONE FOR TRANSGENDER CLIENTS
Minors and Parents/Guardians
University of Alabama at Birmingham Pediatric Endocrinology
Multidisciplinary Gender Health Team

Before using testosterone to transition and masculinize your body, you and your parents or guardians need to know the possible advantages, disadvantages and risks of these medications. We have listed them here for you. It's important that you understand all of this information before you begin taking these medications.

Please read the following with your parent or guardian. Once your questions or concerns are addressed, and you have decided to proceed with the medication(s), both you and your parent or guardian will need to sign this information and consent form.

We are happy to answer any questions you have.

What is testosterone?

It is the sex hormone that makes certain features appear typically male. It builds muscle and causes the development of facial hair and a deeper voice.

How is testosterone taken?

It is usually injected every one to four weeks. It is not used as a pill because the body may not absorb it properly and may cause potentially fatal liver problems. Some people use skin creams and patches, but they tend to be more expensive and aren't recommended for initiating puberty or for use in teenagers and young adults.

The doses used for injection differ from product to product and from patient to patient. They may range from 50 to 400mg. The injections are given in a large muscle to slow the release of the hormone. You may experience unwanted swings in hormone levels. You may control the swings by changing how often the dose is given and how much of a dose is given.

Every medication has risks, benefits, and side effects that are important to understand before starting. The effects and side effects of medicines used for transition need to be monitored with laboratory studies and regular visits to your provider to make sure that there are no negative effects on your body.

The medicines that you take, as well as the process of transitioning can affect your mood. While trans men are usually relieved and happy with the changes that occur, it is important that you are under the care of a gender-qualified therapist while undergoing transition. The therapist can work with you, your family and friends and your school staff.

Warning — Who should not take testosterone?

It should *not* be used by anyone who is pregnant or has uncontrolled coronary artery disease as it could increase your risk for a fatal heart attack:

It should be used with caution and only after a full discussion of risks by anyone who

- Has acne
- Has a family history of heart disease or breast cancer
- Has had a blood clot
- Has high levels of cholesterol
- Has liver disease
- Has a high red-blood-cell count
- Is obese
- Smokes cigarettes

Periodic blood tests to check on the effects of the hormone will be needed. Routine breast exams and pelvic exams with Pap tests should be continued, when applicable.

Summary of Testosterone Benefits and Risks

BENEFITS	RISKS

• Appearing more like a man
  ○ Bigger clitoris
  ○ Coarser skin
  ○ Lower voice
  ○ More body hair
  ○ More facial hair
  ○ More muscle mass
  ○ More strength
  ○ No more menstrual periods
• More physical energy
• More sex drive
• Protection against bone thinning (osteoporosis)
	• Acne (may permanently scar)
	• Blood clots (thrombophlebitis), risk significantly increased by smoking
	• Emotional changes, for example, more aggression
	• Headache
	• High blood pressure (hypertension)
	• Increased red-blood-cell count
	• Infertility
	• Inflamed liver
	• Interaction with drugs for diabetes and blood thinning — for example Coumadin and Warfarin
	• Male pattern baldness
	• More abdominal fat — redistributed to a male shape
	• More risk of heart disease
	• Swelling of hands, feet, and legs
	• Weight gain

Both you and your parent or guardian should initial and date each statement on this form to show that you and your parent or guardian understand the benefits, risks, and changes that may occur from taking this medications.

Masculinizing

_____I know that testosterone may be prescribed to make me appear less like a woman and more like a man.

_____ I know it can take several months or longer for the effects to become noticeable. I know that no one can predict how fast – or how much – change will happen. I know that the changes may not be complete for two to five years after I start.

_____I know that the following changes are likely and permanent even if I stop taking testosterone:

- Bigger clitoris — typically about half an inch to a little more than an inch
- Deeper voice
- Gradual growth of mustache and beard
- Hair loss at the temples and crown of the head — possibility of being completely bald
- More, thicker, and coarser hairs on abdomen, arms, back, chest, and legs

_____ I know that the following changes are usually not permanent — they are likely to go away if I stop taking testosterone:

- Acne (although there may be permanent scars)
- Menstrual periods typically stop one to six months after starting
- More abdominal fat – redistributed to a male shape: decreased on buttocks, hips, and thighs; increased in abdomen – changing from “pear shape” to “apple shape”
- More muscle mass and strength
- More sex drive
- Vaginal dryness

_____I know that the effects of testosterone on fertility are unknown. I have been told that I may or may not be able to get pregnant even if I stop taking testosterone. I know that I might still get pregnant even after testosterone stops my menstrual periods. I know about my birth control options (if applicable). And I know that I can’t take testosterone if I am pregnant and that I must take a pregnancy test prior to starting testosterone therapy.

_____ I know that some aspects of my body will not be changed:

- Losing some fat may make my breasts appear slightly smaller, but they will not shrink very much.
- My voice will deepen, but other aspects of the way I speak may not sound more masculine.
- Although testosterone can’t make these changes happen, there are other treatments that may be helpful.

_____I know that there may be mood changes with these medicines. I agree to continue therapy with a qualified therapist.

_____I know if I have any concerns about these issues, you can make referrals for me to help me explore other treatment options.

Risks of Testosterone

_____I know the medical effects and the safety of testosterone are not completely known. There may be long-term risks that are not yet known.

_____I know not to take more testosterone than prescribed. Taking too much:

- Will increase health risks
- Won't make changes happen more quickly or more significantly
- Can cause my body to convert extra testosterone into estrogen, and that can slow down or stop my appearing more masculine

_____I know that testosterone can cause changes that increase my risk of heart disease. These changes include having:

- Less good cholesterol (HDL) that may protect against heart disease and more bad cholesterol (LDL) that may increase the risk of heart disease
- Higher blood pressure
- More deposits of fat around my internal organs

_____I know that my risk of heart disease is higher if people in my family have had heart disease, if I am overweight, or if I smoke.

_____I know that I should have periodic heart-health checkups for as long as I take testosterone. This means I must watch my weight and cholesterol levels and have them checked by my clinician.

_____I know testosterone can damage the liver and possibly lead to liver disease and I should be checked for possible liver damage for as long as I take testosterone.

_____I know testosterone can increase my red blood cells and hemoglobin. This increase is usually only to what is normal for a man and shouldn't cause any health risks. However, there is a small possibility that higher levels of red blood cells and hemoglobin may increase my risk of life-threatening problems such as stroke or heart attack. That's why I know I need to have periodic blood checks for as long as I take testosterone.

_____I know that taking testosterone can increase my risk for diabetes. It may decrease my body's response to insulin, cause weight gain, and increase deposits of fat around my internal organs. Therefore, I should have periodic checks of my blood glucose for as long as I take testosterone.

_____I know my body can turn testosterone into estrogen and that no one knows if that could increase the risk of cancers of the breast, the ovaries, or the uterus.

_____I know taking testosterone can thin the tissue of my cervix and the walls of my vagina. This can lead to tears or abrasions during vaginal sex or play with a male or female partner. These tears increase my risk of getting a sexually transmitted infection, including HIV. I know I should speak frankly with my primary care provider about my sex life to learn the best ways to prevent and check for infections.

_____I know that testosterone can give me headaches or migraines. I know that it's best to talk with my clinician if I get them a lot or if the pain is unusually severe.

_____I know that testosterone can cause emotional changes. For example, I could become more irritable, frustrated, or angry. I know that my clinician can help me find resources to explore and cope with these changes.

_____I know that testosterone causes changes that other people will notice. Some transgender people have experienced harassment, discrimination, and violence because of this. Others have lost the support of loved ones. I know my clinician can help me find advocacy and support resources.

Prevention of Medical Complications

_____I agree to take testosterone as prescribed. I agree to not purchase testosterone or other hormones without my physician's knowledge, and I agree to tell my clinician if I have any problems or am unhappy with the treatment.

_____I know that the dose and type of medication that's prescribed for me may not be the same as someone else's.

_____I understand that the medications prescribed are for my use only and I will not supply these medications to others.

_____I know I need periodic physical exams and blood tests to check for any side effects.

_____I know testosterone can interact with other drugs and medicines. These include alcohol, diet supplements, herbs, other hormones, and street drugs. This kind of interaction can cause complications. I know that I need to prevent complications because they can be life-threatening. That's why I need to be honest with my clinician about whatever else I take. I also know that I will continue to get medical care here no matter what I share about what I take.

_____ _____ I know that it can be risky for anyone with certain conditions to take testosterone. I agree to be evaluated if my clinician thinks I may have one of them. Then we will decide if it's a good idea to start or continue using testosterone.

_____ _____ I know that using testosterone to masculinize is an off-label use. This means it is not approved by the Food and Drug Administration (FDA). I know that the medicine and dose that is recommended for me is based on the judgment and experience of my health care provider and the best information that is currently available in the medical literature.

_____ _____ I understand that my insurance company may not cover the costs of this treatment. If so, I accept responsibility for any charges associated with this treatment. Costs of treatment can be obtained by contacting The Pediatric Endocrinology office at 205 638 9107.

_____I know that I can choose to stop taking testosterone at any time. I know that if I decide to do that, I should do it with the help of my clinician. This will help me make sure there are no negative reactions. I also know my clinician may suggest that I cut the dose or stop taking it at all if certain conditions develop. This may happen if the side effects are severe or there are health risks that can't be controlled.

Alternatives

There are alternatives to using testosterone to help people appear more masculine. Some transgender people choose to not take hormones or have surgery and may only socially transition. If you are interested in alternatives, talk with your health care provider about your options.

Our signatures below confirm that:

- My clinician has talked with me and my parents or guardians about
  - The benefits and risks of taking testosterone
  - The possible or likely consequences of hormone therapy
  - Potential alternative treatments
- I understand the risks that may be involved.
- I know that the information in this form includes the known effects and risks. I also know that there may be unknown long-term effects of risks.
- I have had enough opportunity to discuss treatment options with my clinician.
- All of my questions have been answered to my satisfaction.
- I believe I know enough to give informed consent to take, refuse, or postpone testosterone therapy.

Based on all this information:

_____I want to begin taking testosterone.

_____I do not wish to begin taking testosterone at this time.

_____ _____
Patient Signature Date

_____ _____
Signature of Parent or Guardian Date

_____ _____
Prescribing Clinician Signature Date

Your health is important to us. If you have any questions or concerns please call us at (205) 638 9107. We are always happy to help you.

DOC. 87

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER, *et al.*,	)	
Plaintiffs,	)	
v.	)	No. 2:22-cv-00184-LCB-SRW
KAY IVEY, in her official capacity as Governor of the State of Alabama, *et al.*,	)	
Defendants.	)	

DEFENDANTS' NOTICE OF FILING
CORRECTED EXHIBIT 41

Defendants Kay Ivey, in her official capacity as Governor of the State of Alabama; Steve Marshall, in his official capacity as Attorney General of the State of Alabama; Daryl D. Bailey, in his official capacity as District Attorney for Montgomery County; C. Wilson Blaylock, in his official capacity as District Attorney for Cullman County; Jessica Ventiere, in her official capacity as District Attorney for Lee County; Tom Anderson, in his official capacity as District Attorney for the 12th Judicial Circuit; and Danny Carr, in his official capacity as District Attorney for Jefferson County, give notice of filing the attached corrected copy of Defense Exhibit 41.

Respectfully submitted,

Steve Marshall
Attorney General

Edmund G. LaCour Jr. (ASB-9182-U81L)
Solicitor General

A. Barrett Bowdre (ASB-2087-K29V)
Thomas A. Wilson (ASB-1494-D25C)
Deputy Solicitors General

s/ James W. Davis
James W. Davis (ASB-4063-I58J)
Deputy Attorney General

Benjamin M. Seiss (ASB-2110-O00W)
Assistant Attorney General

OFFICE OF THE ATTORNEY GENERAL
STATE OF ALABAMA
501 Washington Avenue
P.O. Box 300152
Montgomery, Alabama 36130-0152
Telephone: (334) 242-7300
Edmund.LaCour@AlabamaAG.gov
Barrett.Bowdre@AlabamaAG.gov
Thomas.Wilson@AlabamaAG.gov
Jim.Davis@AlabamaAG.gov
Ben.Seiss@AlabamaAG.gov

Counsel for Defendants

Christopher Mills
(SC Bar No. 101050)
(*pro hac vice* motion pending)

SPERO LAW LLC
557 East Bay St.
#22251
Charleston, SC 29451
Telephone: (843) 606-0640
cmills@spero.law

CERTIFICATE OF SERVICE

I certify that I electronically filed this document using the Court's CM/ECF system on May 3, 2022, which will serve all counsel of record.

s/ James W. Davis
Counsel for Defendants

DOC. 87-1

SOCIETY COMMENTARY

I Spent a Year as a Trans Man. Doctors Failed Me at Every Turn.

Sydney Wright October 07, 2019

COMMENTARY BY

Sydney Wright

Sydney Wright is a business sales representative in the private sector and a student at Georgia Northwestern Technical College.
I can't wrap my head around all that I've done to myself in the last two years, much less the "help" that some health care professionals have done to me.

Two years ago, I was a healthy, beautiful girl heading toward high school graduation. Before long, I turned into an overweight, pre-diabetic nightmare of a transgender man.

I won't place the full blame on health care providers, because I should have known better. But they sure helped me do a lot of harm to myself—and they made a hefty buck doing it.

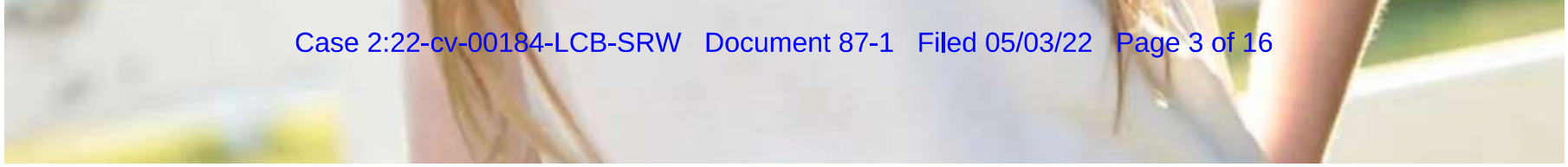
Here's my story.

From my earliest years, I was always different from the other girls. I wore boy clothes, and I played with boy toys. I was a classic tomboy.

As I got older, I became romantically interested in other girls. In fact, with the exception of one guy I dated in high school, I exclusively dated girls.

At the time, you wouldn't have been able to tell I was gay just from looking at me. I had long, blond hair, wore makeup, and carried myself rather femininely. But in my head, I knew I was gay—though I was more of a self-loathing gay.

The truth is, I didn't like gays, and didn't want to be associated with them. Yet there I was, dating only other girls.



Sydney as a senior in high school. (Photo: Sydney Wright)

By the time I was 17, my parents had long divorced and I was living with my dad. That's when he found out I was dating girls. He promptly kicked me out of the house, saying it was his way or the highway.

With little choice, I moved in with my mom.

Soon after that, I cut my hair—a decision that grieved both my parents. But what happened next grieved them far more.

At age 18, I started seeing a bunch of transgender men's "success stories" on Instagram. The trans men talked about how something had always "felt off" with them, and they said people couldn't tell they had been the opposite sex after their transition.

Their stories all seemed to have a happy ending—and it made me rather jealous.

Here I was getting frowned upon for holding hands with my girlfriend in public, feeling like I'm constantly being judged by everyone, while transgenders could date their same-sex significant other while looking like the opposite sex.

I resented that and began to envy the transgenders. I looked into it for myself.

A Fast Track to Transgender

Everything I read was in favor of transitioning.

> ***They only mentioned how brave the transition would make you, and how good it would be for you.***

Regrettably, I couldn't find any articles about transgender regret or the huge health issues that would come from making the transition. They only mentioned how brave the transition would make you, and how good it would be for you.

I tried my best to find books that discussed the issue critically and offered opposing views, but all I found were pro-transgender authors. That left me with the obvious conclusion: If all the "experts" were in favor of transition, why not do it?

Every passing day, I saw myself as this awful "dyke," this unnatural lesbian. I hated that image and would much rather have been a guy dating girls. So I Googled how to make the transition to male.

Sydney after cutting her hair. (Photo: Sydney Wright)

The first step was to find a therapist who would write me a letter to start me on male hormones.

I soon found a therapist who said she would help me, and I told her I wanted to start the hormones on my 19th birthday, which was only five weeks off. She required only a one-hour appointment each week.

That's hardly enough time to get to know someone. Yet those five hours got me an official letter that unlocked the doors for me to get hormone therapy and become a "man." It also helped me change my "sex" on my driver's license from female to male.

> ***Not once did she tap the brakes to keep me from gender transition.***

I now see a huge problem with how easy this was. If the therapist had gone slower and been more careful, she would have seen that I wasn't actually trans.

But by this time, I'd seen the promotional videos. I was convinced that my gender is what was "off," and the therapist guided me along and made me feel like a sex change is what I needed.

By this point, my friends were also encouraging me to transition. "You're a hot girl," they said. "You'll be a hot guy, too!" Others were too afraid to say anything against it, because after all, it was 2017. I never got pushback from anyone.

In reality, of course, I was not a boy, and hearing otherwise was the last thing I needed. I was simply insecure about being tomboyish and a lesbian in public.

My therapist never once tried to sit down with me and figure that out. Instead, she asked me questions like: "When did you start feeling this way?" "Why do you feel you're this way?"

Not once did she tap the brakes to keep me from gender transition.

The Scam That Scarred Me

Once I got my letter, I went to a doctor in Atlanta in what turned out to be the worst treatment of my life.

> ***I was not a boy, and hearing otherwise was the last thing I needed.***

The doctor came in and asked if I had any questions. I told him, "I'm just a little nervous." He asked, "Do you not want to do this?" I said, "I do," and he replied, "All right. Where's your letter?"

I gave him my letter, but he didn't open it—not even to check if it was real.

He said, "I'll call in your prescription for testosterone." That surprised me—I thought he was going to administer it himself.

I asked, "Are you not going to give me the shot yourself?" He then sarcastically suggested I could drive all the way back to Rome, Georgia, (four hours) to get my prescription, and then come back to his office to get the shot.

That wasn't realistic, and he knew it.

"But I don't know how to give myself a shot," I said.

He replied, "There's no wrong way to give it." He told me to go home and figure it out. He suggested watching a YouTube video.

That honestly scared me. It should have been red flag No. 1 that the doctor didn't care, that this was just a money scam. His hands-off approach showed he was confident he wouldn't be held accountable for this treatment.

But at this point, I was still caught in the delusion. I thought gender transition could make me "normal."

Unfortunately, that's not the reality that awaited me.

Destroying My Own Body

The injections of male hormones started to have their effect, but not in the way I expected. I started gaining more and more weight. My skin started to get more and more puffy and discolored. My blood started to thicken.

The doctor's office was running bloodwork for me every three months, and it actually said I was now pre-diabetic—something that was totally new for me.

My gender-transition doctor said not to worry, but I decided to see another doctor for a second opinion. He said my thickening blood put me at risk for a heart attack or stroke.

Sydney during the first few months on hormones. (Photo: Sydney Wright)

I did this to myself for almost a year. During that time, I gained 50 pounds and was miserable. None of my problems that I thought this would solve were being solved, and I came to have even less self-confidence than before.

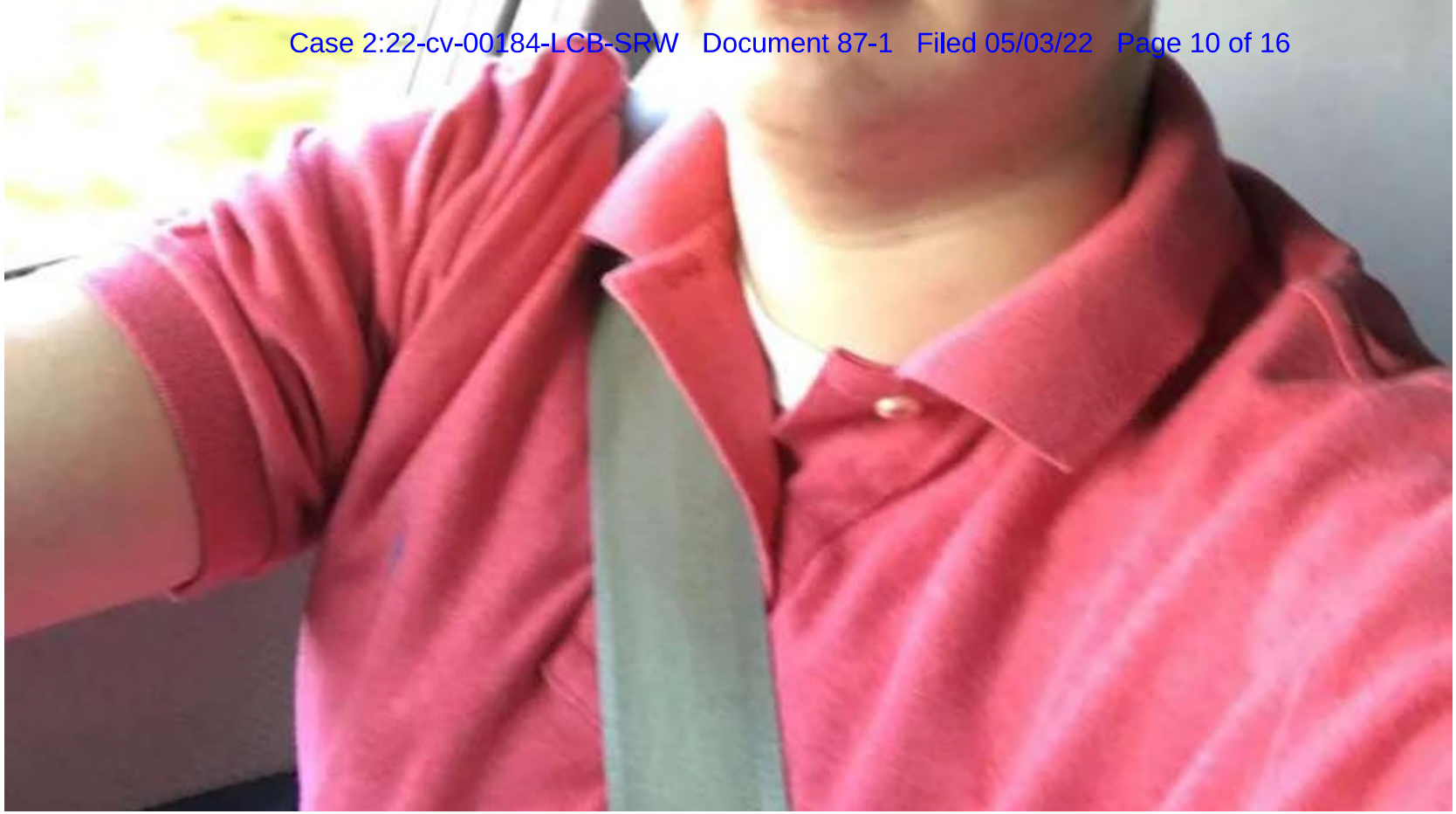
I started feeling regret.

Unfortunately, I was stuck: I had already declared to everyone that this was who I was. I had changed my gender, and I had forced people to play along with it and call me by a new name: Jaxson. At work, men had to be OK with their former female co-worker now using the same restroom as them.

Everyone was walking on eggshells around me—and people fell in line for fear of what might happen if they objected. (Employers are already being sued over this kind of thing, after all.)

Nobody could tell me what I was doing was wrong, or "Hey, wake up!" A few brave souls at work did quietly try to say, "Are you sure?" Or, "Why don't you think about it a little while?"

Meanwhile, my mom was crying daily about why I was doing this to myself, all the while blaming herself.



Sydney after one year on hormones. (Photo: Sydney Wright)

Finally, one day, my grandfather sat me down to talk about it. He was, and will remain the only person whose opinion I will ever care about. With tears in his eyes, he asked me to stop.

Everything in me wanted to keep going—not even because I wanted it anymore, but because of pride. “What will people think?” I thought. I had made everyone play along. If I suddenly stopped, what would I tell people?

Those questions ate at me. And yet, there was my grandpa, the man I respect most, pleading with me through tears. I just couldn’t tell him no.

That was a saving grace. I would have let this treatment kill me before admitting I’d screwed up. His intervention may have saved my life.

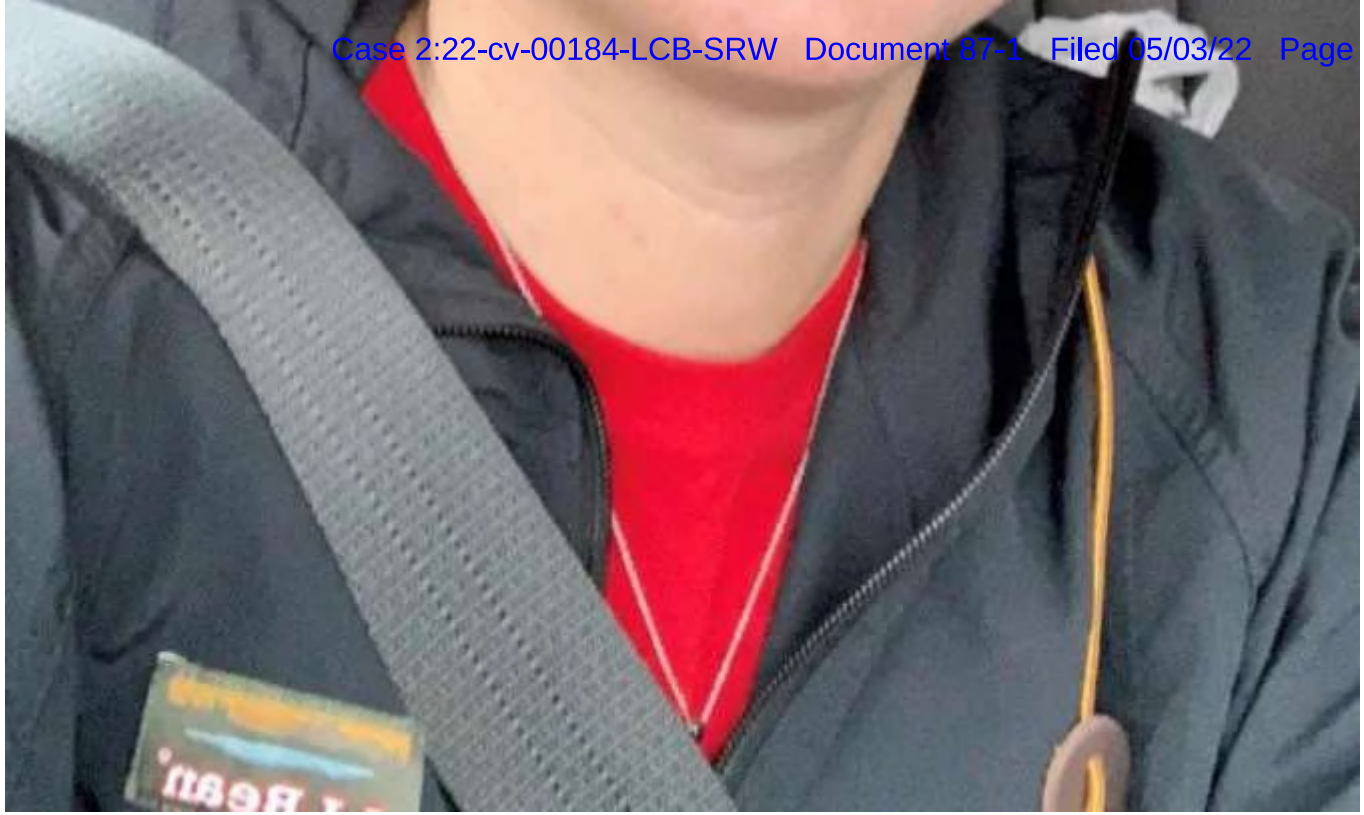
Sydney with her grandfather. (Photo: Sydney Wright)

So I decided to quit—and I quit cold turkey without seeing my doctor again.

Unfortunately, it wasn't that simple.

Not even two weeks after stopping hormone treatment, the withdrawals kicked in with a vengeance. I was soon on the floor groaning, crying, throwing up, not able to keep anything down, and not able to eat at all.

Getting sick every single day was exhausting. I went to the emergency room three times and had to have two procedures to figure out what was happening to me. My hormone balance was way off, and I was miserable.



Sydney while losing weight from withdrawals. (Photo: Sydney Wright)

The last time I went to the ER, I had been showering and suddenly went into withdrawals. I called my mom, who had to drive 30 minutes to come get me out of the shower and take me to the hospital. I didn't even think I would make it there alive.

Before the ER gave me medicine to sedate me, I begged my mom to make them admit me to the hospital. "I will die if I go back home or leave here," I said.

She and I both sat crying before I passed out from all the sedatives they gave me. I thought I wasn't going to make it.

Finally, Hope

After four long, exhausting months of being sick every day and losing the 50 pounds, I finally got back to a semi-normal life.

I'm now more stable, but my body bears the scars of gender therapy. My voice is still deep, and I look very masculine. I'm now $1,000 poorer due to the cost, though that's a fraction of what insurance paid.

And, because of that doctor's letter that said I'm irreversibly a male, my driver's license is now stuck with a "male" label. I'll have to appear in court to prove I'm a female again.

Nevertheless, I'm just thankful to have gotten off this horrible path alive, and before I had any body parts mutilated.

Sydney six months after quitting hormone treatment. (Photo: Sydney Wright)

It's insane to me that our society is letting this to happen to young people. At age 18, I wasn't even legal to buy alcohol, but I was old enough to go to a therapist and get hormones to change my gender.

This is happening to vulnerable kids much younger than I was, and the adults are AWOL.

When you walk into these clinics, you won't really see older people around. It's boys and girls playing dress-up, brought there by clueless parents, waiting for the appointment that could likely ruin their lives.

I hope I'm not the only one who sees a major problem with this. Our culture has set up a fast-track to gender transition that will only result in scarred bodies and ruined lives—and the medical community is complicit. I met with these doctors in person and gave them my own cash. I can tell you they did not care.

> ***At age 18, I wasn't even legal to buy alcohol, but I was old enough to go to a therapist and get hormones to change my gender.***

This is a public health crisis that our media and politicians are completely ignoring. More young people are being deceived every day, being told that the solution to their insecurity and identity problems is to get a sex change.

That's just about the worst path you can put a young person on.

Until we do something, until the medical community puts up serious guardrails and begins to do its due diligence—and until politicians grow a spine and step in—expect to see more young people scarred for life.

If anything, I hope my story can serve as a warning bell and save some other young teenager the misery and grief I've been through.

DOC. 92

**IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION**

REV. PAUL A. EKNES-TUCKER; BRIANNA BOE, individually and on behalf of her minor son, MICHAEL BOE; JAMES ZOE, individually and on behalf of his minor son, ZACHARY ZOE; MEGAN POE, individually and on behalf of her minor daughter, ALLISON POE; KATHY NOE, individually and on behalf of her minor son, CHRISTOPHER NOE; JANE MOE, Ph.D.; and RACHEL KOE, M.D. Plaintiffs, and UNITED STATES OF AMERICA, Plaintiff-Intervenor, v. KAY IVEY, in her official capacity as Governor of the State of Alabama; STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama; DARYL D. BAILEY, in his official capacity as District Attorney for Montgomery County; C. WILSON BLAYLOCK, in his official capacity as District Attorney for Cullman County; JESSICA VENTIERE, in her official capacity as District Attorney for Lee County; TOM ANDERSON, in his official capacity as District Attorney for the 12th	Case No. 2:22-cv-184-LCB-SRW Honorable Liles C. Burke

Judicial Circuit; and DANNY CARR, in his official capacity as District Attorney for Jefferson County.

Defendants.

AMENDED COMPLAINT IN INTERVENTION

Plaintiff-Intervenor, the United States of America ("United States"), alleges:

PRELIMINARY STATEMENT

1. This lawsuit challenges a state statute that denies necessary medical care to children based solely on who they are.

2. All people, including transgender youth, deserve to be treated with dignity and respect. And the Fourteenth Amendment demands that Alabama not "deny to any person within its jurisdiction the equal protection of the laws." U.S. Const. amend. XIV.

3. The United States accordingly files this complaint in intervention to enforce the Constitution's guarantee of equal protection, and to challenge Section 4 of Act No. 2022-289, Senate Bill ("S.B.") 184 (2022), the "Alabama Vulnerable Child Compassion and Protection Act."

4. S.B. 184 criminalizes certain forms of medically necessary care for transgender minors. Specifically, S.B. 184 makes it a felony to "engage in or cause" specified types of medical care for minors, if performed for "the purpose of

attempting to alter the appearance of or affirm the minor's perception of his or her gender or sex, if that appearance or perception is inconsistent" with sex assigned at birth.

5. S.B. 184 thus allows a minor to receive certain medical procedures or treatment only if they will be used to affirm the sex that the minor was assigned at birth.

6. The law discriminates against transgender minors by unjustifiably denying them access to certain forms of medically necessary care.

7. While criminalizing certain forms of medically necessary gender-affirming care for transgender minors, S.B. 184 permits all other minors to access the same procedures and treatments.

8. As a result of S.B. 184, medical professionals, parents, and minors old enough to make their own medical decisions are forced to choose between forgoing medically necessary procedures and treatments or facing criminal prosecution.

9. S.B. 184's felony ban on various forms of medically necessary gender-affirming care for transgender minors discriminates on the basis of both sex and transgender status in violation of the Equal Protection Clause of the Fourteenth Amendment to the United States Constitution.

JURISDICTION AND VENUE

10. The Court has jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and 1345.

11. The United States is authorized to intervene in this action pursuant to 42 U.S.C. § 2000h-2. The Attorney General of the United States has certified that this case is of general public importance.

12. Venue is proper pursuant to 28 U.S.C. §§ 81(b) and 1391(b).

13. This Court has the authority to enter a declaratory judgment and to provide preliminary and permanent injunctive relief pursuant to Rules 57 and 65 of the Federal Rules of Civil Procedure, and 28 U.S.C. §§ 2201 and 2202.

PARTIES

14. Plaintiff-Intervenor is the United States of America.

15. Defendant Kay Ivey is the Governor of the State of Alabama. Governor Ivey is sued in her official capacity.

16. Defendant Steve Marshall is the Attorney General of the State of Alabama. Attorney General Marshall is sued in his official capacity.

17. Defendant Daryl D. Bailey is the Montgomery County District Attorney. Mr. Bailey is sued in his official capacity.

18. Defendant C. Wilson Blaylock is the District Attorney for the 32nd Judicial Circuit, which oversees Cullman County. Mr. Blaylock is sued in his

official capacity.

19. Defendant Jessica Ventiere is the Lee County District Attorney. Ms. Ventiere is sued in her official capacity.

20. Defendant Tom Anderson is the District Attorney for the 12th Judicial Circuit, which oversees Coffee County and Pike County. Mr. Anderson is sued in his official capacity.

21. Defendant Danny Carr is the Jefferson County District Attorney. Mr. Carr is sued in his official capacity.

FACTUAL ALLEGATIONS

22. Transgender people are individuals whose gender identity does not conform with the sex they were assigned at birth.

23. The American Psychiatric Association has stated "[b]eing transgender or gender diverse implies no impairment in judgment, stability, reliability, or general social or vocational capabilities."

A. Standard of Care for Treating Transgender Youth

24. According to the American Psychiatric Association's Diagnostic & Statistical Manual of Mental Disorders ("DSM-V"), an authoritative source for psychiatric conditions, "Gender Dysphoria" is the diagnostic term for the condition experienced by some transgender people of clinically significant distress resulting from the lack of congruence between their gender identity and the sex assigned to

them at birth.

25. As the DSM-V explains, to be diagnosed with gender dysphoria, the individual must experience the incongruence for at least six months and experience clinically significant distress or impairment in social, occupational, or other important areas of functioning.

26. The American Psychiatric Association recognizes that not all transgender persons have gender dysphoria. A diagnosis of gender dysphoria is currently required in order to receive many forms of gender-affirming care, including hormone therapy and surgery.

27. The DSM-V notes that medical treatment for gender dysphoria addresses the clinically significant distress created by gender dysphoria by helping people who are transgender live in alignment with their gender identity.

28. The precise treatment for gender dysphoria depends on each person's individual needs. According to clinical guidelines from the World Professional Association for Transgender Health ("WPATH"), the number and type of interventions to treat gender dysphoria may differ from person to person. The medical standards of care differ depending on whether the treatment is for a pre-pubertal child, an adolescent (i.e., minors who have entered puberty), or an adult.

29. The American Academy of Pediatrics agrees that gender-affirming care is safe, effective, and medically necessary treatment for the health and

wellbeing of some children and adolescents suffering from gender dysphoria.

30. Before puberty, the American Academy of Pediatrics recommends treatment for gender dysphoria that does not include any pharmaceutical or surgical intervention and is limited to "social transition," which means allowing a transgender child to live and express themselves in ways consistent with their gender identity.

31. As transgender youth reach puberty, puberty delaying therapy may become medically necessary and appropriate for some minors according to the Endocrine Society's clinical practice guidelines.

32. According to the American Academy of Pediatrics, gender dysphoria may emerge or worsen with the onset of puberty. For many transgender adolescents, going through puberty in accordance with the sex assigned to them at birth, can cause extreme distress.

33. According to WPATH, refusing timely and necessary medical interventions for adolescents may prolong gender dysphoria and lead to an appearance that provokes abuse and stigmatization; such gender-related abuse is in turn associated with psychiatric distress.

34. The Endocrine Society's clinical guidelines recognize that puberty delaying hormone treatment (also referred to as puberty blockers or puberty suppressing treatment) allows transgender youth to avoid experiencing heightened

gender dysphoria and permanent physical changes that puberty would cause. Before providing such therapy, pediatric endocrinologists work in close consultation with qualified mental health professionals experienced in diagnosing and treating gender dysphoria.

35. Under the Endocrine Society's clinical guidelines, transgender adolescents may be eligible for puberty-blocking hormone therapy only if the following steps have been taken:

- A qualified mental health professional confirms the adolescent has demonstrated a long-lasting and intense pattern of gender nonconformity or gender dysphoria, gender dysphoria worsened with the onset of puberty, and any coexisting psychological, medical, or social problems that could interfere with treatment have been addressed, such that the adolescent's situation and functioning are stable enough to start treatment;

- The adolescent has sufficient mental capacity to give informed consent to this treatment, has been informed of the effects and side effects of treatment (including potential loss of fertility) and options to preserve fertility; and has given informed consent and the parents or other caretakers or guardians have consented to the treatment and are involved in supporting the adolescent throughout the treatment process; and

- A pediatric endocrinologist or other clinician experienced in pubertal assessment agrees with the indication for treatment, has confirmed that puberty has started in the adolescent, and has confirmed that there are no medical contraindications to treatment.

36. According to WPATH, during puberty suppression, an adolescent's physical development should be carefully monitored, preferably by a pediatric endocrinologist, so that any necessary interventions can occur.

37. WPATH also recognizes that for some transgender adolescents, it may be medically necessary and appropriate to provide hormone therapy to initiate puberty consistent with gender identity.

38. Under WPATH's clinical guidelines, adolescents who are transgender may receive medically necessary chest reconstructive surgeries prior to the age of majority if they have severe gender dysphoria, provided they have been living consistent with their gender identity for a significant period of time.

39. According to WPATH, while some transgender individuals find comfort with their gender identity without surgery, for others surgery is essential and medically necessary to alleviate gender dysphoria. Surgery is often the last and most considered step in treatment for gender dysphoria.

B. Senate Bill 184

1. Bill Text

40. S.B. 184 was signed into law by Governor Kay Ivey on April 8, 2022. The law will become effective on May 8, 2022.

41. Section 2 of the bill includes various legislative findings suggesting that sex is an immutable characteristic that cannot be changed. The findings reject the need for interventions to treat gender dysphoria, describing such treatments as "unproven" and "experimental" and causing "numerous harmful effects." The findings characterize a "discordance between sex and identity" as a state that

resolves itself over time in most cases.

42. Section 3 of the bill defines "sex" as the "biological state of being male or female, based on the individual's sex organs, chromosomes, and endogenous hormone profiles."

43. Section 4 of the bill identifies a set of medical practices, including administering puberty blockers, administering hormone therapy, and surgical interventions (including the removal of "any healthy or non-diseased body part or tissue, except for a male circumcision"). It further provides that "no person shall engage in or cause any of" these practices to be performed on a minor for "the purpose of attempting to alter the appearance of or affirm the minor's perception of his or her gender or sex, if that appearance or perception is inconsistent" with sex assigned at birth.

44. Section 4 contains an exception for procedures "undertaken to treat a minor born with a medically verifiable disorder of sex development."

45. By its terms, the prohibition in S.B. 184 necessarily implicates parents of transgender minors as well as health care providers and other medical professionals. And because S.B. 184 prohibits any person from causing the prohibited treatment, a transgender minor may face prosecution for seeking out their own medically necessary care. *See* Ala. Code § 22-8-4 ("Any minor who is 14 years of age or older, or has graduated from high school, or is married, or

having been married is divorced or is pregnant may give effective consent to any legally authorized medical, dental, health or mental health services for himself or herself, and the consent of no other person shall be necessary.").

46. Violation of Section 4 of S.B. 184 is a Class C felony, which is punishable by up to 10 years of imprisonment and a fine of up to $15,000. *See* Ala. Crim. Code §§ 13-A-5-6(a)(3), 13A-5-11(a)(3).

2. Impact of S.B. 184

47. S.B. 184's felony ban on various forms of gender-affirming care prohibits transgender minors from accessing certain medical procedures or treatment if they will be used to affirm a gender identity inconsistent with the sex assigned at birth.

48. The law discriminates against transgender minors by unjustifiably denying them access to certain forms of medically necessary care. S.B. 184 prohibits transgender minors from obtaining care that is well recognized within the medical community as medically appropriate and necessary, while imposing no comparable limitation on medically necessary care by cisgender minors.

49. In addition, the law allows children to access the exact same medical procedures or treatment if they will be used to reinforce the gender they were assigned at birth.

50. With respect to medical care, S.B. 184 permits a doctor, for example, to prescribe testosterone for a cisgender male minor suffering from delayed pubertal development or a condition such as hypogonadism, but the law makes it a felony for the same doctor to prescribe the same testosterone to a transgender male youth to affirm his gender identity.

51. With respect to surgical procedures, for example, the law permits a cisgender girl to undergo a voluntary non-cancer related breast augmentation procedure to make her feel more accepting of her body, but forbids a transgender girl from receiving the same procedure even when recommended as medically appropriate by her physician. The law also permits a cisgender boy with gynecomastia to have excess breast tissue surgically removed to give him a more "male" physique, but does not permit a transgender boy to obtain the same treatment.

52. In other words, the sex a minor was assigned at birth determines the legality and availability of medically necessary treatments.

53. In restricting who may receive medically prescribed care based on the individual's sex assigned at birth, S.B. 184 threatens health care providers with criminal sanctions for exercising their independent medical judgment and expertise and threatens parents and others with criminal sanctions for acting on their judgment of what is in their child's best interest.

54. Further, the law prevents transgender minors from accessing gender-affirming care that is widely recognized within the medical community as the only effective treatment for some individuals diagnosed with gender dysphoria. S.B. 184 prevents healthcare providers from considering the recognized standard of care for gender dysphoria and from providing medically necessary gender-affirming care for improving the physical and mental health of their patients.

CAUSE OF ACTION

COUNT ONE
Violation of Equal Protection
U.S. Constitution, Amendment XIV
Plaintiff-Intervenor United States against All Defendants

55. The United States re-alleges and re-pleads all the allegations of the preceding and subsequent paragraphs of this Complaint and incorporates them herein by reference.

56. The Equal Protection Clause of the Fourteenth Amendment to the U.S. Constitution prohibits state and local governments from denying to any person within their jurisdiction the equal protection of the laws.

57. Section 4 of S.B. 184 discriminates both on the basis of sex and on the basis of transgender status, each in violation of the Equal Protection Clause.

58. Under the Equal Protection Clause, government classifications based on sex or on transgender status are subject to heightened scrutiny and are presumptively unconstitutional.

59. Section 4 of S.B. 184 cannot survive heightened scrutiny because it is not substantially related to achieving Alabama's articulated important governmental interests.

60. In the alternative, Section 4 of the statute could not survive any level of scrutiny because it is not rationally related to a legitimate government interest.

61. The above conduct of Defendants has been taken under color of state and local law.

PRAYER FOR RELIEF

WHEREFORE, the United States respectfully requests that this Court:

a. Enter a judgment declaring that Section 4 of S.B. 184 violates the Equal Protection Clause of the Fourteenth Amendment to the United States Constitution;

b. Temporarily restrain, and issue a preliminary and permanent injunction restraining, Defendants from enforcing Section 4 of S.B. 184; and

c. Grant such additional relief as the needs of justice may require.

Dated: May 4, 2022

Respectfully submitted,

SANDRA J. STEWART
United States Attorney
Middle District of Alabama

PRIM F. ESCALONA
United States Attorney
Northern District of Alabama

LANE H. WOODKE
Chief, Civil Division
Northern District of Alabama

JASON R. CHEEK
Deputy Chief, Civil Division
U.S. Attorney's Office
Northern District of Alabama
1801 Fourth Avenue North
Birmingham, Alabama 35203
Tel.: (205) 244-2104
Jason.Cheek@usdoj.gov

STEPHEN D. WADSWORTH
Assistant United States Attorney
U.S. Attorney's Office
Middle District of Alabama
Post Office Box 197
Montgomery, Alabama 36101-0197
Tel.: (334) 223-7280
Stephen.Wadsworth@usdoj.gov

KRISTEN CLARKE
Assistant Attorney General
Civil Rights Division

JOHN POWERS (DC Bar No. 1024831)
Counsel to the Assistant Attorney General
Civil Rights Division

CHRISTINE STONEMAN
Chief, Federal Coordination and
Compliance Section

COTY MONTAG (DC Bar No. 498357)
Deputy Chief, Federal Coordination and
Compliance Section

s/Alyssa C. Lareau
ALYSSA C. LAREAU (DC Bar No. 494881)
RENEE WILLIAMS (CA Bar No. 284855)
KAITLIN TOYAMA (CA Bar No. 318993)
Trial Attorneys
United States Department of Justice
Civil Rights Division
Federal Coordination and Compliance
Section
950 Pennsylvania Avenue NW - 4CON
Washington, DC 20530
Tel.: (202) 305-2994
Alyssa.Lareau@usdoj.gov
Renee.Williams3@usdoj.gov
Kaitlin.Toyama@usdoj.gov

Attorneys for Plaintiff-Intervenor United States of America

DOC. 94

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

PAUL A. EKNES-TUCKER, *et al.*,	)	
	)	
Plaintiffs,	)	
	)	
UNITED STATES OF AMERICA	)	
	)	
Intervenor Plaintiff,	)	
	)	
v.	)	**Case No. 2:22-cv-184-LCB**
	)	
STEVE MARSHALL, *et al.*,	)	
	)	
Defendants.	)	

PROCEDURAL ORDERS & STATUS OF FORTHCOMING OPINION

This suit challenges the constitutionality of the Alabama Vulnerable Child Compassion and Protection Act. Before the Court are five procedural motions. First, the United States moves to intervene on behalf of Plaintiffs under Federal Rule of Civil Procedure 24. (Doc. 58 at 2). For the reasons given on the record during the motion hearing, the United States's motion to intervene (Doc. 58) is **GRANTED**.

Second, the States of Arkansas, Alaska, Arizona, Georgia, Indiana, Louisiana, Mississippi, Missouri, Montana, Nebraska, Oklahoma, South Carolina, Texas, Utah, and West Virginia move for leave to proceed as *amici curiae* and file a brief in support of Defendants. (Doc. 71 at 1). Third, twenty-two health organizations move for leave to proceed as *amici curiae* and file a brief in support of Plaintiffs. (Doc. 91

at 1–2). Because the proposed *amici* briefs are timely and offer relevant information, the motions for leave to proceed as *amici curiae* (Docs. 71 & 91) are **GRANTED**. The Court will consider the briefs in ruling on the motions for a preliminary injunction.

Fourth, Plaintiffs move for leave to file Exhibit 40 of their Exhibit List under seal. (Doc. 84 at 2). Fifth, Plaintiffs Megan Poe and Dr. Rachel Koe move to seal the preliminary injunction hearing while they testify. (Doc. 90 at 2). For the reasons given on the record during the preliminary injunction hearing, the motions to seal (Docs. 84 & 90) are **GRANTED**.

Finally, as the Court explained on the record, this is a complicated case that raises complex and important issues and consists of many hundreds of pages of briefing and exhibits. The Court has made very substantial progress toward crafting an opinion in this matter and expects to file the opinion by the end of this week, if not sooner.

DONE and **ORDERED** May 8, 2022.

LILES C. BURKE
UNITED STATES DISTRICT JUDGE

DOC. 104

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER, et al.,	*	
Plaintiffs,	*	2:22-cv-00184-LCB
	*	May 5, 2022
vs.	*	Montgomery, Alabama
	*	9:00 a.m.
KAY IVEY, in her official capacity as Governor of the State of Alabama, et al.,	*	
Defendant.	*	

****

TRANSCRIPT OF PRELIMINARY INJUNCTION HEARING
VOLUME I
BEFORE THE HONORABLE LILES C. BURKE
UNITED STATES DISTRICT JUDGE

Proceedings recorded by OFFICIAL COURT REPORTER, Qualified pursuant to 28 U.S.C. 753(a) & Guide to Judiciary Policies and Procedures Vol. VI, Chapter III, D.2. Transcript produced by computerized stenotype.

CHRISTINA K. DECKER, RMR, CRR
Federal Official Court Reporter
256-506-0085/ChristinaDecker.rmr.crr@aol.com

APPEARANCES

FOR THE PLAINTIFFS:
Melody Eagan, Esq.
Jeff Doss, Esq.
LIGHTFOOT, FRANKLIN & WHITE, LLC
The Clark Building
400 20th Street North
Birmingham, Alabama 35203

Brent Ray, Esq.
KING & SPALDING
353 N. Clark Street
12th Floor
Chicago, Illinois 60654

Michael Shortnacy, Esq.
KING & SPALDING
633 W. Fifth Street
Suite 1600
Los Angeles, California 90071

Jason R. Cheek, Esq.
US ATTORNEYS OFFICE, NDAL
1801 Fourth Avenue North
Birmingham, Alabama 35203

John Michael Powers, Esq.
DOJ-Crt
Civil Rights Division
950 Pennsylvania Avenue
Washington, DC 20530

FOR THE DEFENDANTS:
James W. Davis, Esq.
Edmund LaCour, Esq.
Barrett Bowdre, Esq.
Benjamin Seiss, Esq.
Christopher Mills, Esq.
OFFICE OF THE ATTORNEY GENERAL
501 Washington Avenue
P.O. Box 300152
Montgomery, Alabama 36130-0152
(334) 242-7300

COURTROOM DEPUTY: Deena Harris

COURT REPORTER: Christina K. Decker, RMR, CRR

I N D E X

P R O C E E D I N G S

(In open court.)

THE COURT: Good morning. Please be seated.

All right. Who is going to proceed on behalf of the plaintiffs today?

MS. EAGAN: Your Honor, I will be questioning the first two witnesses.

THE COURT: All right. Why don't you road map this for me today so I know how this day is going to go?

MS. EAGAN: Sure. So the first witness will be Dr. Linda Hawkins.

Our second live witness will be Dr. Morissa Ladinsky. And I will be doing the examination of those witnesses.

The third will be plaintiff Megan Poe. My colleague Mr. Doss will be questioning that witness.

Our fourth witness will be Rachel Koe, MD, and Brent Ray, who do I not believe that you have met from King & Spaulding, will be asking questions of that witness.

And then our fifth will be Reverend Eknes-Tucker, and he will be our last witness, and Mr. Doss will be conducting the examination of that witness.

THE COURT: All right. So how many of these witnesses can we get in before lunch?

MS. EAGAN: My hope, Your Honor, is that we could get Dr. Hawkins on and, depending on how long defendants' cross is,

I would hope we could get at least Dr. Ladinsky's direct on before lunch.

THE COURT: Are we on target that you believe you will finish today?

MS. EAGAN: Yes, sir. I believe we will.

THE COURT: All right. All right.

MS. EAGAN: That certainly is our goal, and we are going to be as efficient as we can to achieve that.

THE COURT: All right. All right. So State, road map tomorrow for me.

MR. LACOUR: Good morning, Your Honor. I believe we will lead with Dr. Cantor, who is our expert witness, and then we have Sydney Wright, fact witness, who will be testifying after Dr. Cantor.

THE COURT: All right. And what does that time look like?

MR. DAVIS: Your Honor, we are confident that we can get those two done in half a day.

THE COURT: Still half a day?

MR. DAVIS: Yes.

THE COURT: Okay. We're really on target. Okay. I looked back at that Arkansas hearing, and I was wrong. That entire preliminary injunction hearing was two hours and 53 minutes, so y'all are all way ahead of the game here.

Okay. The floor is yours.

MS. EAGAN: Your Honor, if I may approach.

First, I would like to take up an administrative matter.

Plaintiffs' Exhibits 1 through 44 for this hearing have been previously filed into the Court record as Document 78. It was filed on May the 3rd. And we have conferred with defense counsel, and if permissible from Your Honor's perspective, we would go ahead and offer Plaintiffs' Exhibit 1 through 44 into evidence for the hearing so that we're not having to do it with each witness.

THE COURT: By agreement?

MR. DAVIS: By agreement. We don't object, and we likewise move to admit Defendants' Exhibits 1 through 41.

MS. EAGAN: We agree to that.

THE COURT: Excellent. Excellent. Any other administrative issues? I know we still have -- I think there is still a motion hanging out there to remove Governor Ivey from this action.

MS. EAGAN: Yes, sir. We have conferred with counsel for defendants, and to streamline the case, and considering the stipulations that the defendants have made in regards to that, Governor Ivey will be bound by whatever injunction or decision Your Honor makes, and then also, of course, by appeal, whatever the outcome of that, if appeal happens. In light of that stipulation, we have agreed and filed a joint motion to dismiss Governor Ivey without prejudice.

THE COURT: Somebody enlighten me. What is the thought process -- I'm imperfectly fine and we'll do that. But enlighten me as to why that's happening.

MS. EAGAN: My understanding, Your Honor, is that when I conferred -- when the defendants first filed their answer, and they indicated that they plan to file a motion to dismiss on behalf of Governor Ivey, I conferred with defense counsel, and he explained to me that they would take the position that Governor Ivey would not have any independent authority -- enforcement authority over this Act. And maybe defense counsel could better explain the grounds, but after we conferred, and in light of the stipulations that we have reached, we have agreed to streamline the case and dismiss Governor Ivey.

THE COURT: Mr. Davis, do you want to chime in on that?

MR. DAVIS: Judge, she is not a prosecutor. The Governor doesn't prosecute. They're challenging a criminal law. She is not needed. We just wanted to simplify the case.

THE COURT: No problem. All right. Well, that motion is granted. And so it's yours again, Ms. Eagan.

MS. EAGAN: All right. Your Honor, Mr. Doss has one matter, as well.

MR. DOSS: With respect to our two plaintiffs who are testifying under a pseudonym, we have filed a motion to either have their examination in camera or in the courtroom, but clear

the courtroom.

I mean, it would seem -- we're happy to do whatever would be easiest for Your Honor, but we wanted to go ahead and ask about that so we know logistically what we should do with the witness.

THE COURT: So I know there was an agreement, correct, Mr. Davis, for that to either be sealed or whatnot. Have you conferred?

MR. DAVIS: We have talked, Judge. We are okay with however the Court wishes to handle that. As long as we can cross the witness, whatever means or place you want to do it is okay with us.

THE COURT: So your two choices are in camera or clear the courtroom?

MR. DOSS: Yes, Your Honor.

THE COURT: Doesn't matter to me. Whatever the two parties agree on, I will be happy with.

MR. DOSS: I'm okay with an in-camera examination, if that works for the State.

THE COURT: In camera will be easier logistically.

MR. DAVIS: Will there be room for more than one lawyer from each side to come? We probably don't have to bring everybody.

THE COURT: Absolutely. I think we will just go to the conference room.

MR. DOSS: Where should we have the witness go in the courtroom or in the courthouse to get to where the witness needs to be?

THE COURT: Deena, could somebody maybe meet the witness and the attorneys right there at that outer door before you go in the judge's conference room?

THE COURTROOM DEPUTY CLERK: Yes, sir. I can get a marshal or...

THE COURT: That's probably the easiest way to do it. When the time comes, give me 20 minutes' notice.

MR. DOSS: Yes, Your Honor. Thank you.

THE COURT: All right. Go ahead.

MS. EAGAN: Your Honor, plaintiffs are ready to proceed, if Your Honor is.

THE COURT: Go ahead.

MS. EAGAN: Your Honor, the plaintiffs call Linda -- Dr. Linda Hawkins.

LINDA HAWKINS, MD,

having been first duly sworn by the courtroom deputy clerk, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. EAGAN:

Q Good morning, Dr. Hawkins.

A Good morning.

Q Could you please introduce yourself?

A Yes. My name is Linda Aline Hawkins.
Q Dr. Hawkins, what do you do for a living?
A I am the director of the Gender and Sexuality Development Clinic at the Children's Hospital of Philadelphia.
Q And what is -- are you a licensed professional counselor?
A I am.
Q Tell us a little bit about your educational background, please, Dr. Hawkins.
A My background includes Bachelor's of Science in speech and hearing science from the University of Washington. I have a master's in psychological services from the University of Pennsylvania, and a Ph.D. from Widener University in human sexuality and human development.
Q And, Dr. Hawkins, what is your area of specialty?
A My broader -- my broad area of specialty is LGBT children, youth, and their families, and more specifically, transgender children, youth, and their families.
Q And in your practice, do you actually work with children and adolescents who are experiencing gender dysphoria and their families?
A I do. I see anywhere from 10 to 15 families a week.
Q Could you please elaborate in your experience supporting the LGBT youth and their families?
A In my role as a mental health provider, I often am working with young people who are experiencing anxiety, depression,

coming to understand their identities, and also supporting the families that are part of that young person's system. Often there are young people who are experiencing profound mental illness in addition to their LGBT identities. So for trans children and youth, it is an important job to have a strong mental health background.

Q How long are have you been working in that area, Dr. Hawkins?

A About 22 years.

Q Okay. And what are the settings in which you have provided this support and counseling to youth?

A The majority of my time has been in the Children's Hospital of Philadelphia. So outpatient setting that is part of a specialty care center.

I've also had a private practice, where I saw transgender children, youth, and their parents, as well as mental health through a community mental health center in Philadelphia.

Q Over the 20-plus years that you have been doing this, how many transgender children and adolescents have you worked with over that time frame?

A Specifically transgender, over 4,000. If we look at LGBTQ and gender-exploring children, many more thousand.

Q Dr. Hawkins, up there with you, you should have a binder that are plaintiffs' exhibits that have been admitted into evidence.

If you could please turn to Plaintiffs' Exhibit Number 3.
A Yes.
Q Dr. Hawkins, what is Plaintiffs' Exhibit Number 3?
A My declaration.
Q Okay. And by your declaration, was this something -- was this under oath when you provided this and signed this?
A Yes.
Q Okay. And Exhibit A, if you could turn to Exhibit A of Plaintiffs' Exhibit 3.
A Yes.
Q What is this document?
A This is my updated curriculum vitae.
Q Does your curriculum vitae provide a detailed overview of your education, training, and experience in the area of transgender care of youth and adolescents?
A Yes, it does.
Q Dr. Hawkins, you mentioned that you work with the gender and sexuality development program at Children's. What is your role there?
A My role is to develop and oversee the entire program. We have two clinics -- one in Philadelphia, and one in Voorhees, New Jersey -- where we're currently supporting about 3,000 families. And that involves overseeing the mental health and medical care and choreography with all specialists who are part of this care, which involves eight to ten different

subspecialties. And then as I said earlier, I see -- I actually see families every week to provide the expert assessments.

Q When was the gender and sexuality development program opened at Children's in Philadelphia?

A We opened our doors in January of 2014. And prior to that date, specialists had been providing the work in different departments and different divisions. But in January of 2014, we all came under one umbrella for ease of patients and families to find our care.

Q And when you opened your doors in 2014, how many pediatric gender clinics were in the nation at that point?

A We were the fourth pediatric gender clinic to open in a major pediatric academic hospital.

Q Okay. Have you served as a director at any other gender clinics other than the one at Children's in Philadelphia?

A Yes. One thing that I'm able to do is travel to other children's hospitals and assist in their development of gender programs based on the exceptional style of work that we do and the standard of care that we've created at Children's Hospital of Philadelphia.

I spent two years at Rady Children's in San Diego helping to build up and improve their program with the methods that we use, as well as two years at John's Hopkins All Children's Hospital in St. Pete, Florida. I've also consulted with

Children's Denver and Children's Seattle to make sure everybody is doing the best work possible.

Q Dr. Hawkins, do you actually train other therapists to support transgender youth with gender dysphoria?

A Yes. In 2018, I founded a -- with colleagues, I founded a training program, a one-year training program for therapists to be able to learn how to better support and serve transgender individuals across the life span. My focus was children and youth and families. Other specialists focused on older transgender people.

Q Have you authored any peer-reviewed publications relating to transgender health issues?

A I have. I have collaborated on the publication from studies that were done by our medical fellows.

Q And are those publications, are those included in the publications that you have authored that are outlined on pages 5 through 9 of your curriculum vitae?

A Yes, they are.

Q And do these articles re -- do those articles include ones relating to the treatment of gender dysphoria in transgender youth?

A Yes.

Q Dr. Hawkins, do you belong to any professional organizations or associations that relate to the care of transgender children and adolescents?

A I do. I am a member of the World Professional Association for Transgender Health, often called WPATH. I'm also a member of USPATH, which is the U.S. version of that organization, as well as the mental health organizations that oversee my licensure.

MS. EAGAN: Your Honor, we would tender Dr. Hawkins as a mental health and counseling expert in the field of transgender health, including the treatment of gender dysphoria in children and adolescents.

MR. BOWDRE: No objection, Your Honor.

THE COURT: Be admitted for that purpose.

BY MS. EAGAN:

Q All right. Dr. Hawkins, let's take a step back. And I would like to talk about some terms that we're going to be using a lot over the next couple of days.

First, what is gender identity?

A Gender identity is the internal authentic hardwired sense of one's self as male or female. Every human has a gender identity. It's truly how we identify ourselves in our head, in our heart internally.

Q Is gender identity something that we as humans choose?

A No. It's hardwired. In opportunities to see where children are encouraged to try to be some -- like the opposite gender and that's not who they are, we see that that is not possible. It is not a choice. It is who somebody is.

Q When do children typically become aware of their gender identity?

A Typical gender development among all young people, given the opportunity to have a healthy developmental period in childhood usually occurs between the ages of three and five years old. Prior to three years old, children are absorbing lots of cues and rules and understandings about how gender works around them.

By three -- around three to five years old is when young people start to have the synapsis fusing in their brain to have them truly imagine and understand their gender identity. We don't always hear from three to five years old about differences in gender identity, but for some, we do.

That developmental period of time for gender identity is often when we see young people across the board having normative gender exploration or play, such as somebody who is a boy putting on a tutu at preschool, or a girl putting on a suit and tie and pretending to have imaginative play of being daddy.

So the majority of humans have gender play in childhood. The difference with somebody who has a long-lasting sense of that is where we move into a diagnostic level.

Q In most children, does their gender identity align with their birth sex?

A Yes. The majority of children go through a period of gender exploration or gender play. And it goes away. It --

the young person will feel and identify that they are aligned with their sex assigned at birth, so their gender identity matches what they were told in the hospital about who they are. And that's a term we use, cisgender. So somebody whose gender is on the same side of their sex assigned at birth. The majority of children will fall into that category.

Q Okay. As a mental health provider, how do you differentiate between nontrans children who may have gender nonconforming behaviors and then transgender children? How do you draw that distinction?

A That distinction really comes from the American Psychiatric Association's diagnostic manual that gives us criteria with which we follow to understand when somebody reaches a diagnostic threshold of gender dysphoria. Gender dysphoria is that distinct feeling of not -- not having a body that fits with your gender identity.

The diagnostic criteria for childhood clearly states that the feelings are significant of distress and that there's a specific duration of time that exceeds what would be typical in the average child exploring gender.

So the duration of time that's required is consecutive six months. Not just a few weeks of putting on a tutu, not just a month or two of putting on a tie. It's a long-term consecutive six months' minimum with identifiable clinical distress.

Q Is that time threshold different for adolescents than adults?

A That time -- the threshold is longer for adolescents and adults because that is a period of time where the treatment recommendation moves beyond just social support for the child and family, and psychological support to assess and assure that the young person is truly transgender.

The third component of care when you get into adolescents and adulthood includes medical care, which requires a more rigorous assessment and duration of time and evidence of distress.

Q Okay. Has there been advancements made in your area with the ability to differentiate between children or adolescents who have nonconforming gender behavior and then transgender children?

A Yes. We're always evolving as humanity is evolving. And the criteria continues to require that we look at, you know, higher levels of distress, different types of trauma that our young people are experiencing, to be able to assure that certain traumas, certain mental health conditions that are becoming more prevalent amongst teenagers and even amongst children are not falsely having us perceive a child as transgender when there's really something else going on. So we're always refining and expanding our assessment process to be as thorough as possible.

Q Okay. You touched on this a minute ago, but just to go back to this, what is gender dysphoria?

A Gender dysphoria is a diagnostic term that is given to us through the American Psychiatric Association, the American Psychological Association.

And it is -- it defines the distinct distress that an individual would feel between how -- their gender identity, their internal hardwired authentic sense of self differs from their sex assigned at birth. And specifically, the secondary sex characteristics that their body has produced as a result of that sex assigned at birth.

Q If gender dysphoria is not properly treated, what are the results in transgender children?

A The -- the effects of not -- the outcomes -- sorry -- of not treating young people and adults who have been diagnosed adequately with gender dysphoria, we see higher rates of depression, anxiety, suicidality, eating disorders, substance use and abuse, and other comorbid conditions that result from significant internalized distress.

Q When can gender dysphoria manifest itself in children and adolescents?

A I mentioned the first time of three to five years old, when there is the natural and typical onset of understanding one's gendered self, and that some young people share with us with their words, with their behaviors, with their actions.

Behaviors being anger, anxiety, actions, wanting to have hair cut short, wanting to have different clothing.

In adolescence or preadolescence is also a time where we will see young people who previously may have been seen as a tomboy or a more feminine boy and accepted in that type of identity start to exhibit significant distress as puberty is about to begin.

So there are really two -- two times in childhood and adolescence where we tend to see an increase in young people sharing distress, letting their parents know, and then coming to a clinic like mine.

Q And as far as puberty, what is -- why is it that that is a triggering event in transgender children with gender dysphoria?

A Because gender dysphoria is connected to the difference -- the incongruence is the diagnostic word. The incongruence between somebody's internal gender identity and their body and secondary sex characteristics, the diagnosis of gender dysphoria in adolescents and adults very clearly states that there is the added level of distress that occurs as body development begins.

So if somebody has spent from two to ten years old identifying as a male and being able to understand that they are male and have other people understand them as a male, the onset of breast development is devastating. The onset of menstruation monthly is devastating.

Q As a mental health counselor at Children's in Philadelphia, are you, Dr. Hawkins, involved with assessing children and adolescents for gender dysphoria?

A I am.

Q Could you please describe the assessment process?

A The assessment process is -- involves multiple visits and multiple professionals who are trained in this care.

The first portion of the assessment is all mental health and functioning. So developmental specialists, mental health specialists, including psychologists and psychiatrists, social workers get involved to look at school and community and home performance. And we call it a 360 assessment. So the -- we spend significant amounts of time with the young person alone, the young person with their family, parents alone.

Once we get outside of the family system, we look at all of the other systems that are part of a child's life. So that could include meeting with teachers, getting input from teachers about the amount of time and how they're presenting and behaving at school, feedback from the pediatrician, feedback from any community-based therapist, psychiatrist, or any systems that have been part of the child -- of the child's life.

At minimum, this takes a duration of several months. And for some children, it goes across years to really assure that we're providing the right care to the right kids.

Q In the assessment, are the potential of other -- or mental health issues analyzed? Is that part of the assessment?
A 100 percent. That's usually where we start. We want to really make sure -- we want to understand where these thoughts and feelings are coming from. And if there are any current mental health struggles or significant chronic mental health conditions that the child or youth has, that we're very clear that the distress with the body and the identity, their gender identity is not somehow a symptom of something else, or something else masking has gender dysphoria.

Oftentimes, that's where we start, to make sure that we don't move a child down the road of assessment into gender care when that's really not the right care.

Q What about trauma? If the child's had some trauma in their life, is that also part of the assessment?
A Absolutely. And that's within that first portion of potential for mental health distress or diagnosis is trauma. We look very closely at trauma, neurological development, our kids with autism or ASD, any type of childhood or youth mental health or neurological condition that could have them not really understanding who they are because of that trauma or mental health.

Q Dr. Hawkins, what are the potential outcomes of this assessment?
A In my work, we see that there is three typical outcomes.

And I like to simplify things, so I like three categories.

The first is the kid doesn't have -- the young person doesn't have gender dysphoria. There's something else going on. And for those kids, we move them into a treatment plan that's really going to focus on that concern or that issue.

And some of those young people are actually exploring gender. They may have come to a gender clinic because they've been sharing some gender exploration, but they don't meet criteria for gender dysphoria. They may benefit from other resources and services, but they're not going to go down the road of medical care.

The second category of young person is maybe somebody who's experienced trauma. So there's too much going on in the moment for us to make a really quick -- it's never quick, but a clear, like decision about how somebody is identifying that would lead to a medical care plan. Those young people have an extended assessment period to really carefully look further into what's going on.

If there's been a trauma, we would want to make sure that there's been sufficient unpacking mental health-wise through therapy, through potentially psychiatric medications, to assure that if we are moving a young person into the next group I will describe, that we have ruled out that the trauma could be causing the distress, and that it is truly just gender dysphoria.

The third category would be someone who after rigorous multiperson mental health assessment with the family and all the systems I described would be referring to our medical experts who would then begin their assessment. In younger years, it's nothing. There would never be a move to medical care.

As an adolescents moves into distress with puberty, that would be meeting with endocrinologists, fertility specialists, pediatricians, and trained experts who would then begin their assessment to ensure the best medical plan.

Q If the child is assessed and medical care is appropriate, are puberty blockers and hormones accepted, hormone treatments accepted to be too well-established, effective medications to be provided to transgender adolescents?

A Yes, they are, based on the guidelines from the leading mental health and medical experts.

Q And just to be clear, before a child enters puberty, do they -- are they given any of these types of medications?

A No.

Q Okay. Even if an adolescent is placed on puberty blockers or on hormones, does a mental health care provider still stay involved in their care?

A 100 percent. We're constantly assessing and reassessing the appropriateness of every treatment plan.

When transgender kids and youth have dysphoria, they

benefit from long-term support, whether that's helping their school be more supportive or helping parents and family members understand how to continue to support them in their communities.

So it is a constant assessment reassessment to assure that we're in the right category and on the right path.

Q The assessment process and then the potential use of medications such as puberty blockers and hormone treatments, if appropriate in an adolescent, do you believe that that is the appropriate care for gender dysphoria?

A When gender dysphoria is diagnosed very clearly, yes.

Q And why?

A Because the -- having been in this work for 22 years, prior to there being the addition of medical care for children and youth -- well, for youth, sorry. It doesn't apply to children.

Mental health providers were just trying to keep kids alive until they became older to get the access to those medications. And now what we're seeing is the opportunity for children and youth to not only survive, but thrive. And the fact that we are able to see more kids going to college and we're going to fewer funerals, and the recommendations are supported by all of the leading local and mental health leaders gives us the guidance that the medication is an important addition to the treatment plans.

Q Let's talk about the guidance by the medical leaders.

If you -- who are the organizations who have issued guidelines outlining that this is -- the regime that you have talked about is the appropriate care for adolescents and children with gender dysphoria?

A To name a few, the American Academy of Pediatrics, the American Medical Association, the American Psychiatric Association, American Psychological Association, just to name a few.

Q Okay. And are there -- if you could please turn in the notebook that you have in front of you --

A Uh-huh.

Q -- to page -- to Plaintiffs' Exhibit 17, Dr. Hawkins.

A Yes.

Q What is this document?

A This is the World Professional Association for Transgender Health Standards of Care for Health of Transsexual Transgender and Gender Nonconforming People published in 2012.

Q How does this interplay with the care regime that you have described as appropriate and accepted?

A Commonly called the WPATH standards of care. This provides a set of guidelines, recommendations for comprehensive care for transgender individuals. It outlines expectations of people who are considered gender experts, like myself, the training that we should have, as well as ways in which we may

best be able to support transgender folks across the life span.
Q I am going to direct your attention to Plaintiffs' Exhibits 14 through 29. And have you reviewed those exhibits before coming here today?
A I'm sorry.
Q Plaintiffs' Exhibits 14 through 29. And if you would like, there's actually a listing at the front of that book that may help you that's just got the articles or the different exhibits listed.
THE COURT: While she is looking at that, it occurs to me that nobody has invoked the rule. That may not be necessary. Does anybody want the rule or no?
MS. EAGAN: We do not.
THE COURT: Okay.
MR. LACOUR: We do not, Your Honor.
THE COURT: Okay. Just checking. Go ahead.
THE WITNESS: Yes. These are position statements and guidelines from nationally recognized and respected organizations that oversee the care of -- the mental health and medical care for children and youth and adults. Sorry.
BY MS. EAGAN:
Q All right. And do those organizations -- if you could just kind of -- let me ask you this: Do those organizations include the Endocrine Society, the American Academy of Child and Adolescents Psychiatry, the Pediatric Endocrine Society,

WPATH, the United States Professional Association for Transgender Health, the American Medical Association, the American Psychiatric Association, the American Psychological Association, and the American Academy of Pediatrics? Are those all included in the composite exhibits?

A Yes. I have seen them all.

Q And are all of those exhibits different endorsements of or support for the type of care that you provide to transgender children and adolescents, as well as the medical treatments if you refer the child out?

A Yes, they are.

Q Dr. Hawkins, I don't know if you have defendants' exhibits.

MS. EAGAN: May I approach, Your Honor?

THE COURT: Yes.

MS. EAGAN: I have a defense exhibit I would like to show the witness.

THE WITNESS: Thank you.

BY MS. EAGAN:

Q Dr. Hawkins, I have handed to you what has been marked as Defendants' Exhibit Number 2, the declaration of James Cantor.

Have you reviewed this declaration before?

A Yes, I have.

Q And if you'd turn to page -- excuse me -- paragraph 36 of his declaration. You'll see that Dr. Cantor states in this, he

asserts that with prepubescent children -- and those are children before they go into puberty, correct?

A Yes.

Q With prepubescent children who feel gender dysphoric, he says, the majority cease to want to be the other gender over the course of puberty, ranging from 61 to 88 percent desistance across large prospective studies.

How does that reconcile with the -- how does that data reconcile, if it does, with your clinical experience and what you know about studies?

A When -- when a study offers this elevated rate of what we call -- what's being termed as a desister or somebody who goes from gender behaviors, gender exploration that is opposite to their sex assigned at birth, what we tend to find is that the initial cohort that was given the diagnosis of gender dysphoria is actually false. And that is elevated.

So when I said earlier there is a very typical amount of gender exploration that is part of childhood and even adolescence, not all of those individuals should have been termed gender dysphoric or having gender dysphoria.

So what we see in general, once young people are coming to a clinic, some are still experiencing gender exploration, which is why we need a very thorough assessment. But if you go back to the preschool room with five year olds who are all exploring gender, that cohort would be a large group of kids who are

really not gender dysphoric and should not have been diagnosed with gender dysphoria.

So in natural -- yes, 80 percent of kids who put on a tutu are not transgender.

Q So I want to focus on once the child is not prepubescent, but when they actually have entered puberty, when they are adolescents, okay? Based upon your clinical experience, research, and expertise, do transgender adolescents, after they've reached puberty, usually grow out of their gender dysphoria?

A Not if they truly have gender dysphoria.

Q Okay. And do they generally grow out of their -- or does mere counseling, is that sufficient generally with youth who are -- adolescents, once they've reached puberty?

A If they truly have gender dysphoria and have been diagnosed as such from a major -- a comprehensive assessment, mental health support is only going to go so far.

Because the distress is specific to body changes, that is why the recommendations across the board for mental health and medical experts includes the three pieces -- social support, psychological support, and medical support.

Q In Dr. Cantor's declaration, going back to that, Dr. Cantor notes some recent findings that have been made in certain organizations -- in the UK and Finland and Sweden and France -- related to medical care for transgender youth.

Let me ask you this question: Have any of those countries banned the use of puberty blockers or hormones for gender dysphoria in transgender youth?

A No, they have not.

Q If you could also turn to paragraph 47 of Dr. Cantor's affidavit -- excuse me -- declaration.

I apologize. I wrote down the wrong number.

Let me ask you this: Are you familiar with Dr. Cantor's critiques in his affidavit about studies using observational data to prove the efficacy of transgender medical treatment? Are you familiar with his critiques of that?

A I am.

Q First of all, what does observational data mean?

A So the only way to study human behavior is by observation. It is how we assess for mental health concerns. It's how we assess for developmental and sometimes neurological assessments.

And so the only opportunity we have to assess -- we can't do a blood test right now or a brain scan right now to identify someone as transgender, so we have to rely on observational data.

And in particular, because the treatment of transgender children who have this gender dysphoria includes mental health and medical care, we can't do things like double blind studies and say, this kid is just not going to get this medication, or

this kid is not going to get this mental health care, and we will watch to see how poorly they do. That's unethical.

So what we do is observational studies to look at how do young people do when they are able to get the three pieces of care in a way that is best for them based on the assessment. And also we can look at what happens to kids that are waiting to get that care for some reason.

One addition I would make is that while the critique is about the rightness or validity of observational studies in human behavior, which that is the most appropriate, the majority, if not all of these studies include measured psychometric tests, which are also an objective way of looking at behavior.

So an example would be something like the CBCL or the Children's Behavior Checklist. That is done by the child, by the parent, and oftentimes by a teacher. So we are looking at multiple inputs.

And again, the psychometric measures that were utilized in these studies add another layer to the validity of the observations.

Q Dr. Hawkins, switching gears a little bit. Is mental health counseling to adolescents with gender dysphoria that encourages them to live in their birth sex, is that helpful to the child or youth -- excuse me -- the adolescent, or is that harmful?

A The history that we have of that type of therapy and counseling being utilized in the past and -- we can see the detriment that that type of therapy has caused. And in my -- even in my day-to-day work now, I see young people who are coming in who have experienced that for two months, two years prior to coming into our center. And it's not -- it's been proven to be detrimental to individuals. It's sometimes referred to as conversion therapy or reparative therapy.

Trying to convince somebody to live in a way that is not authentic to their identity is dangerous, if not unethical -- well, it has been determined unethical by most medical and mental health organizations.

Q Now, I want to turn to SB 184, which is the law that we're here about today. Are you familiar with that law?

A I am.

Q Dr. Hawkins, what impact psychosocially will the denial of medical treatment, a blanket prohibition of puberty blockers and hormone treatments, what impact will that have on transgender youth in Alabama who are currently receiving these treatments?

A It will be devastating. The benefit that young people are receiving from the medical care, medical and mental health care that has been identified as ideal for that patient would be like removing somebody's cancer treatment and just expecting them to be okay. This would be devastating.

Q What impact psychosocially will this law going into effect have on transgender youth in Alabama who may not yet be receiving these treatments, but suffer from gender dysphoria? What impact will it have on them?

A Having worked in Philadelphia and taken care of young people where that was the case just because we did not have medical providers under 18 -- our age of consent is 18 -- adult care is 18 -- I was seeing young people who were desperately waiting to a birth date to get the care that they needed.

And the number of young people who had suicide attempts, had exacerbated mental health distress, which results in inability to attend school, inability to have functioning healthy relationships with their peers and their family, it literally becomes a daily suicide watch that devastates people and families.

MS. EAGAN: Your Honor, may I consult with my colleagues?

THE COURT: Yes.

MS. EAGAN: Thank you, Dr. Hawkins. I have nothing further.

THE COURT: How long does the State believe their cross will be?

MR. BOWDRE: Probably about an hour. I will try to keep to it an hour.

THE COURT: All right. I suspect sometime in the

middle of that we will probably need to take a break, but go ahead. We will knock out some time.

MR. BOWDRE: Thank you.

CROSS-EXAMINATION

BY MR. BOWDRE:

Q Good morning, Dr. Hawkins. My name is Barrett Bowdre. I represent the State defendants.

A Good morning.

Q Thank you for being here.

I might jump around a little bit in my questions, but let me know if things get confusing. I will try and rephrase. If you don't understand the question -- I will admit I am a little sleep deprived, so I might not make all the most sense, so just let me know.

A We will work together.

THE COURT: Speak up just a little bit, Mr. Bowdre.

BY MR. BOWDRE:

Q One question I'm curious about. You mentioned in your report, and I think this is at paragraph 15, you say, because a person's gender identity is unknowable at birth, doctors assign sex based on the appearance of a newborn's external genitalia.

I guess my question is: Do you think that if a doctor did know the child's gender identity at birth, that the biological sex would therefore not -- would become irrelevant?

A In cases where there are medically unclear -- there's

visibly unclear genitalia or there is evidence of some other medical condition going on, medical providers do take pause.

Q I guess -- sorry. To clarify, I'm not really asking about the disorders and those sorts of things. I'm talking simply about gender identity. And in the vast majority of cases, either people align with their sex or they don't; is that right?

A Yes.

Q And you say that it is because we don't know the gender identity that we have to rely on external genitalia to determine the person's sex; is that right?

A Correct.

Q Okay. So if we did know the person's gender identity at birth, would sex become irrelevant?

A I think sex would be -- the sex assigned at birth meaning -- can you clarify what you mean by sex assigned at birth, specifically their genitalia and body?

Q Right. The biological sex that is -- I mean, let me ask you: Can you define what is your definition of sex?

A Sex is a bi -- for in my definition, sex is a biologically-based term that is achieved and understood by a combination of observed body parts and then additional assessment of chromosomes by -- that's the top of my medical knowledge in that.

Q And so would you agree that sex is binary? Biological

sex, not gender identity, biological sex, is sex binary?
A That's stepping outside of my medical purview.
Q Okay. I will move on.
In preparing -- I will admit I was having a little bit of trouble preparing to ask you in-depth questions, because as far as I could tell, you cite maybe five studies in your report. And I am just wondering why do you not cite many studies in your report to -- I mean, you make all these claims. Why do you not cite those studies to back up these claims?
A Given the opportunity to comment and meet and talk, I cited what I did at the time.
Q Okay. You testified earlier about that you are familiar with the international literature reviews; is that correct?
A Yes.
Q Have you reviewed them?
A Have I reviewed every single?
Q Let me be more specific. Have you reviewed the UK's literature reviews from the National Institute for Childhood Excellence, whatever NICE means? Are you familiar with that?
A Can you point to that in the --
Q Yes. Let's go to Defendants' Exhibit 9. Do you have a set of the defendants' exhibits?
A I am on 9, if you're wondering.
Q Okay. Sorry. Is that defendants or plaintiffs? Are you looking at --

A I am looking at the declaration of Kathy Noe.

MR. BOWDRE: May I approach the witness?

THE COURT: Yes.

MR. BOWDRE:

Q I'm sorry. I thought you had this, as well.

A That's okay. Thank you.

Q Okay. Can you identify this document?

A I'm looking at "Evidence reviewed: Gonadotropin releasing hormone analogs for children and adolescents with gender dysphoria."

Q Have you read this?

A I have not.

Q Are you generally aware of it?

A I have not. I am not.

Q You testified earlier that you -- well, maybe -- let me ask you this: Do you keep up with the medical literature in this field?

A I do. I keep up with the mental health literature most frequently, and I rely on the national medical organizations to review and synthesize the medical findings.

Q Okay. Are you -- I think you testified that you oversee a clinic; is that correct?

A Uh-huh.

Q And that clinic provides not only mental health counseling, but also, you know, helps people along the pathway

if -- if you determine it's necessary, they will get puberty blockers, cross-sex hormones; is that right?

A Yes. And I do not oversee the medical arm of medical care. That is overseen by -- we have nine medical experts who do that.

Q Okay. Well, you testified earlier that you believe in the efficacy of the medical care; is that correct?

A Can you just --

Q Yeah. I mean, you testified earlier that the psychological counseling alone is not enough, that these children need puberty blockers. Is that a fair assessment of your testimony?

A I -- I believe that I said, yes, that puberty blockers and hormones are part of the standard of medical care for children. I --

Q Okay.

A I want to stay in my lane of mental health and be clear that the assessment process then moves over to a physician.

Q Okay. You would recommend at some point a patient comes in, you diagnose that patient with gender dysphoria; is that right?

A Uh-huh. Yes.

Q And then at some point, you say, counseling is not enough for you, you need puberty blockers, or at least you need to go and be seen by endocrinologists for you to get puberty

blockers; is that right?
A For the child to be assessed for the appropriateness of puberty blockers.
Q Okay. And you are not aware of what kind of assessment they do?
A I -- I am -- I am aware of conversations they have that include discussing all of the risks, benefits, and limitations. I don't do those meetings because I am not a physician.
Q Okay. Are you aware of the risks, limitations that the informed consent -- or the things that might be necessary for informed consent to begin puberty blockers, for instance?
A Yes. And we do not practice informed consent. We do -- we do a more expanded evaluation and assessment to make sure that young people are aware of -- and parents are aware.
Q Okay. Are you involved in that informed consent process for puberty blockers?
A I am not involved in those meetings.
Q Okay. Are you involved in creating what that process might look like because you direct the clinic?
A In my director role, we then bring all of the assessments back into one room and make a collective determination about what would be the best medical mental health care for a child or youth.
Q Okay. So I just want to be sure I understand. Would you say that you're generally aware of the risks and the benefits

in that calculus for beginning puberty blockers?
A I think generally is a fair word. And especially where it affects psychosocial impacts versus medical impacts.
Q Okay. But is it fair to say that you have not done a deep dive into the literature of whether puberty blockers are actually effective in treating gender dysphoria?
A To that extent, I rely on our medical leaders to be aware of what that is, and that's --
Q Okay.
A Yeah.
Q Would you agree that there's a difference between literature reviews and relying on, you know, a single study? Is that -- are those two different things?
A By construct, they're two different things. And I would say that all research in this field is needed and valued, whether it's a literature review, a single case study, or prospective assessment.
Q Okay. But you have not read -- I just want to make clear -- you have not read, even skimmed the literature reviews done by the UK, National Institute for Health Care -- whatever the CE is. I'm sorry -- I have missed that.
A I have not done a review such that I would be able to sit here and give witness on that.
Q Okay. Would it concern you at all if this evidence review surveyed nine -- the nine longitudinal studies of puberty

blockers that existed in 2020 when the review was done, and came to the conclusion that there was not sufficient evidence to support their efficacy?

A That would definitely be concerning.

Q Okay. Let's look at a couple of just -- I don't want to spend too much time more on this, but I want to look at a couple of the specific findings and get your reaction to them.

A Uh-huh.

Q So if you could flip -- one question -- are you familiar -- you have plaintiffs' exhibits -- you have the plaintiffs' exhibit binder before you?

A Yes.

Q Okay. Sorry to keep making you flip, but I just want to make sure.

Plaintiffs' Exhibit 42.

A 42?

Q Yes, ma'am.

A My binder goes to 41.

Q Sorry. Are you looking in the plaintiffs' binder?

A The one that you just handed me?

Q No. I'm sorry. The one that you had from the plaintiffs.

A Oh. Sorry. Sorry.

Q Sorry about that.

A No, no, no. That was my mistake. Thank you for clarifying. Now I see a 42. Thank you.

Q And what is that?
A This is the Longitudinal Impact of Gender From an Endocrine Intervention on the Mental Health and Wellbeing of Transgender Youth Preliminary Results published in 2020 in the International Journal of Pediatric Endocrinology.
Q Who is the main author?
A Achille.
Q Okay. And then just one more. Are you familiar with that setting, by the way?
A I haven't reviewed the study.
Q Okay. Can you turn to Plaintiffs' Exhibit 35 in that same binder?
A Sorry. Yes.
Q Okay. And is that the study by Lopez de Lara?
A It is Psychosocial Assessment and Transgender Adolescents published in 2020 in -- I'm not familiar with this journal.
Q Okay. Do you see the author?
A Yes.
Q And is it Lopez de Lara?
A Yes.
Q Okay. All right. So now I think this is the last time I will make you switch between binders, but if you could go back to the other binder, the defendants' exhibit, and go back to the study that we were looking at, which is Defense Exhibit 9.
A Yes. I got them both.

Q Sorry. Just one second. Yeah. I flipped it. I'm sorry. Could you move on to one more exhibit, Exhibit 10? It's just the next one this that same binder.
A Oh, okay.
Q I'm sorry this is taking a while. I will move on pretty quickly. Have you seen that before?
A No.
Q Okay. Would you agree that that is -- the evidence review entitled Gender-Affirming Hormones For Children and Adolescents With Gender Dysphoria?
A I see that exhibit.
Q But, again, you have not reviewed this literature, have you?
A No.
Q Okay. Could you go to page 16 of that?
A Uh-huh.
Q And this is a listing of the specific studies that this literature reviewed. And do you see the study that we just looked at by Achille 2020, the one that you said that you were familiar with?
A On page 16, yeah, I see where that's under a Table 1 Summary of Included Studies.
Q Yes. And then could you flip to page 20, and do you see the listing of the Lopez de Lara study that we just looked at, that we just identified? We didn't look specifically at it.

A I see what looks like a summary of that, as well.
Q Okay. Okay. And then could you flip to page 13 with me of the same document? And then would you read along with me? This is in the discussion section of the literature review.
A Uh-huh.
Q And the authors state, The key limitation to identifying the effectiveness and safety of gender-reforming hormones for children and adolescents with gender dysphoria is the lack of reliable comparative studies. And it says, All the studies included in the evidence review are uncontrolled observational studies which are subject to bias and compounding and were of very low certainty using modified grade. A fundamental limitation of all the uncontrolled studies included in this review is that any change in scores from baseline to follow up could be attributed to regression to the mean.

And skipping down a paragraph, it says, Most studies included in this review did not report comorbidities, physical or mental health, and no study reported concomitant treatments and details. Because of this, it is not clear whether any changes seen were due to gender-affirming hormones or other treatments that participants may have received.

And then the last part that I will read is on the top of the very next page. It is difficult to draw firm conclusions for many of the effectiveness and safety outcomes reported in the included studies because many different scoring tools and

methods were used to assess the same outcome often with conflicting results.

Then the next paragraph, Any potential benefits of gender-affirming hormones must be weighed against the largely unknown long-term safety profile of these treatments in children and adolescents with gender dysphoria.

Did I read all that correctly?

A Yes, you did.

Q Okay. Do these findings give you pause?

A I don't feel like I can speak to the conclusions that are in a document that I have not reviewed and the summaries of an author that I haven't read.

Q Okay. You mentioned earlier when my friend on the other side asked you about other countries and whether any other countries were banning, you know, puberty blockers or cross-sex hormones. Do you recall that?

A Yes, I do.

Q You said no other country is banning it; is that right?

A Uh-huh.

Q Are you aware in Sweden if someone has gender dysphoria, are puberty blockers and cross-sex hormones for an adolescent, are those available to that adolescent?

A Off the top of my head, I am not sure what Sweden's age requirement is.

Q Okay. So you don't know if those treatments are

effectively banned in Sweden or not?
A To my understanding, they are not banned.
Q Okay. Can we go to Defense Exhibit 11, which is --
THE COURT: Mr. Bowdre, I would say when you reach a stopping point, let me know, and we will take a break.
MR. BOWDRE: Yes, Your Honor.
THE WITNESS: Care of children and adolescent with children with gender dysphoria?
BY MR. BOWDRE:
Q Yes. Have you seen this document before?
A No.
Q When you testified earlier that you were familiar with what all these other countries were doing, what was your basis for that testimony?
A I'd like to correct that. I didn't say that I am aware of everything that's going on in other countries, that I -- to my knowledge, this care has not been banned. That is what I said.
Q How did you come to that conclusion?
A Reviewing what countries have and -- the fact that the countries are not banning this care as a conclusion.
Q I guess my question is: What research did you do to figure out whether they're banning that care provided that you have never seen this document before?
A The over -- looking at summaries.
Q Okay. Could you turn to page 3 of this document?

A Uh-huh.
Q And under the heading, Recommendations and Criteria For Hormonal Treatment, it says, For adolescents with gender incongruence, the NBHW -- which is the National Board of Health and Welfare of Sweden -- deems that the risks of puberty-suppressing treatment with GnRH analogs, those are commonly referred to as puberty blockers; is that right?
A Yes.
Q Okay. And gender-affirming hormonal treatment currently outweigh the possible benefits, and that the treatments should be offered only in exceptional cases.

This judgment is based mainly on three factors: The continued lack of reliable scientific evidence concerning the efficacy and safety of both treatments, the new knowledge that detransition occurs among young adults, and the uncertainty that follows from the yet unexplained increase in the number of care seekers and increased particularly large among adolescents registered as females at birth.

Did I read that correct?
A You did.
Q First, do those findings give you any pause about the treatment that you were providing in your clinic?
A Any review of care should give us all pause to make sure that we are abiding by the expectations and the needs of children. I don't feel like I can speak to this particular

piece, because I have not reviewed it.
Q Okay. Could you go to the next page with me? And then I think we will be ready for a break.
This is page 4 of that document.
A Uh-huh.
Q Okay. And about halfway through that paragraph -- sorry. Halfway through the second full paragraph of that document, beginning with, Until a research study is in place.
So it says, Until a research study in place, the NBHW deems that treatment with GnRH analogs and sex hormones may be give in exceptional cases in accordance with the updated recommendations and criteria described in the guidelines.
A Uh-huh.
Q And then a couple of sentences before that, is that, To ensure that new knowledge is gathered, the NBHW further deems that treatment with GnRH analogs and sex hormones for young people should be provided within a research context, which does not necessarily imply the use of randomized controlled trials.
Okay. So my question is: Are you aware of any ongoing trials in Sweden in which a child or adolescent with gender dysphoria could receive these treatments?
A Not the medical trials, no. I rely on our medical providers to be aware of the information.
Q Okay. Okay.
MR. BOWDRE: Your Honor, I think now would be a good

time for a break.

THE COURT: Okay. Good. All right. Let's all be back in the courtroom at ten minutes until 11:00.

(Recess.)

THE COURT: I didn't mean to take that long of a break. I have just realized this clock is way off from the regular time. So breaks will be shorter. That was my fault.

So go ahead, Mr. Bowdre.

MR. BOWDRE: Thank you, Your Honor.

BY MR. BOWDRE:

Q Dr. Hawkins, I think I would like to move to and focus more on your treatment of the gender dysphoric children and youth that you treat.

How long on average are these patients in your care?

A The youngest patient I've met with is four to five years old, and we see folks until they're 21, at which point they transition to adult care providers. So it can be 5, 10, 15 years.

Q Do you keep up with them once they transition out at age 21?

A We do, especially for those who are working with the local medical providers, and as much as possible with ongoing research, yes.

Q What does that research look like?

A Keeping track of the outcomes and looking at how young

people are doing as they age out of the clinic.
Q Okay. And at what point -- are you publishing this research?
A Not at this time. We're still in collection.
Q Okay. And what are the long-term -- at what ages are you asking the patients? Does that make sense? Like they leave your clinic at age 21. And then you're conducting research as they progress through life. What ages are they at now?
A I would have to hypothesize that based on -- so we started in 2014. I recall having touched base again with a patient who is nearing 30, who came to us when they were 20 -- or nearing 30, yeah, so in the late 20s. Late 20s is about where the majority of our aged-out patients are right now.
Q Okay. And when you say that you keep in touch with them, is that something -- I mean, do you send them surveys? Do you send them -- do you just call them? Do they call you? What does that look like?
A We have a research director that's part of the Children's Hospital of Philadelphia that does ongoing -- ongoing assessments and ongoing research. It is not myself.
Q Okay. Do all of your patients continue to stay in touch? If you send them a survey or whatever, do they -- how many drop out?
A I can't speak to that. I'm not the research director.
Q Okay. Do you know if any of your patients have gone

through a transition and then detransitioned and aligned with their biological sex?

A For -- for young people who have gone through the complete thorough assessment and have received medical care from our teams, we have not had somebody desist with regret.

Q What does that mean for young -- I mean, I think you had a qualifier at the very beginning. Could you explain that?

A The qualifier was for individuals who have gone through our full assessment and as a result ended up in that third category that I described of young people who will benefit from ongoing medical care for their gender dysphoria, we have not seen anybody to date desist with regret.

Q Okay. And that assumes that you have 100 percent response rates to your surveys or follow up with them once they leave your clinic; is that correct?

A I don't -- I can't speak to the percentages or the follow up --

Q So how do you know that you have not had a detransitioner if you don't know how many drop out of the follow-up studies?

A From the reports back from the research director, we have not seen that yet.

Q Okay.

A That --

Q Are you aware -- at least according to one survey, only a quarter of detransitioners ever tell their doctors -- their

gender clinic doctors that they have detransitioned?
A I had not heard that.
Q Okay. So you have not read Lisa Littman's Survey of Detransitioners?
A I actually have read Lisa Littman's work.
Q Okay. Have you read that specific survey? I mean, as far as I know -- I will just stop there. Have you read that specific survey?
A Yes.
Q Okay. And you just did not pick up on her finding that only a quarter of detransitioners ever told their doctors that they have detransitioned?
A I apologize. I do not recall that from that study.
Q Okay. Does that concern you -- assuming that it's true, does that concern you?
A All the research around transgender children and individuals with gender dysphoria concern me. And it is important to, as a director, hire leaders in each field of medical care, mental health care, and research to lead that.
Q On direct I think you said that your standards of care are exceptional. Did I get that right?
A Yes.
Q Does that mean -- would you agree does that mean that other clinics might not have exceptional care?
A I wouldn't -- I wouldn't speculate to presume that.

Q Okay. Is it your understanding that all providers who prescribe puberty blockers or cross-sex hormones to treat gender dysphoric youth have the same exceptional standards that your clinic does?
A I don't think it's -- I don't think I can say that everybody has to have the same standards. We don't -- we are -- our type of care is incorporating all of the recommendations from every organization. So I'm not sure that I could say that -- in a great world, I would hope that everybody would have the same standards. I don't -- I can't set that as a standard as an individual from Children's Hospital of Philadelphia.
Q Okay. So I guess there's two different questions here. One is: What should the standard be? And then the other question is: What is the standard that everyone's using? And I just want to make sure I'm breaking that down. And your testimony is that the standard that you use is exceptional, but might not be the only way to treat gender dysphoric children; is that right?
A I would agree.
Q Okay. And then the second question is: You would agree that not all clinics or not all pediatrician offices or not all pediatric endocrinologists are using the same standards that you are using to treat gender dysphoric children; is that correct?

A I don't think I could make that speculation about what other people are doing.
Q Okay. I just want to make sure. You testified -- we touched briefly on the informed consent process that your clinic uses. And I believe you said that you are not directly involved in that process, at least for the puberty blockers and cross-sex hormones; is that correct?
A That's completed by a physician.
Q Okay. And you could not testify about what is in that process, what risks are given to the patient or the patient's parents?
A Not the medical risks, no.
Q Okay. So you don't know if the patients are given and are told about the long-term effects that being on puberty blockers might have for them?
A The medical leaders in the clinic are following the expected guidelines that are put out by the medical associations and has been -- have been approved by the Children's Hospital of Philadelphia as best care practice. I can guarantee that.
Q Okay. But I guess -- you don't know -- I guess to go back to my question. You don't know what specific risks the children or their parents are told about being on puberty blockers; is that right?
A Medical risks?

Q Medical risks, psychological risks, whatever the risks are.
A I don't sit in those meetings. My job is to determine that a young person is ready to have those conversations with the medical providers. The medical providers are staying on top of the best practice and the best information to be sharing with the parents and the child -- and the adolescent.
Q Okay. How do you determine when a patient is ready to start that process for medical treatment?
A When psychosocially there is confirmation of the diagnosis of gender dysphoria, and that the distress that a young person or an adolescent is experiencing meets criteria psychosocially or mental health-wise for the distress to be reduced or stopped.
Q And so what is the youngest patient that you have said has met that criteria and was ready to go meet with an endocrinologist about puberty blockers?
A We don't do a lot based on age. We do it based on Tanner staging.

And so the -- I would say the youngest would be conversations with folks in the 14-year-old age range.

And we look at two variables. One is the physical distress that's being described that the breast development, the menstruation is highly distressing and/or the anticipation of those body changes. And for kids who are assigned male at

birth, that would be deepening of the voice and increasing of the genital size.

Q What Tanner stage are you looking for?

A The physicians are looking for Tanner Stage 2.

Q Okay. And I'm correct that there are five Tanner stages?

A From what I have read, yes.

Q Okay. And the Tanner Stage 2 is really the first stage of pubertal changes; is that correct?

A From what I understand from sharing from medical providers, yes.

Q And do you know if -- if a person at Tanner Stage 2, is that person fertile?

A I can't speak to that level of medical knowledge.

Q Okay. So then does that also mean that you are not aware of whether the patients are told that if they start on cross sex -- if they start on puberty blockers and then move on to cross-sex hormones at Tanner Stage 2 that they might be permanently infertile?

A We have on our team fertility specialists who are part of the University of Pennsylvania hospital system, and they are part of the multidisciplinary medical team that does a comprehensive sharing of information and review of systems with every patient and their family. So I have the experts on the team that provide that information.

Q Okay. And they tell the patient that she might end up

permanently infertile?
A I can't speak to that.
Q Okay.
A They provide all the information needed.
Q Okay. Let's move on to diagnosis.
A Uh-huh.
Q And I think you testified earlier that the gender dysphoria is a psychological diagnosis based on the DSM-5; is that right?
A Yes.
Q And as I understand it, the two criteria are gender incongruence and a clinical level of distress about that incongruence; is that fair?
A Correct.
Q Okay. And I think you also said this, that at present there are no brain studies or blood tests that we can do to figure out whether someone has gender dysphoria or not?
A Correct.
Q It's based on patient report and what the family tells you?
A Patient report, what the family tells us, as well as the 360 evaluation of the other people who are involved in the young person's life, including pediatricians, other mental health providers. So...
Q Would you agree that --

THE COURT: Mr. Bowdre, I am not getting in the middle of your case, but I would be interested to have some practical knowledge of what exactly does that clinical level of distress look like.

MR. BOWDRE: Okay.

THE COURT: And maybe that's a better one for their redirect. So I will just aim that at both parties.

MR. BOWDRE: Thank you, Your Honor.

BY MR. BOWDRE:

Q Just to follow up on that there are no brain scans that can identify gender dysphoria or blood tests or any of those sorts of biological tests. Would you agree that that is different than diagnosing precocious puberty, for instance?

A I don't diagnose precocious puberty, so I can't speak to that diagnostic process for a medical provider.

Q Okay. Can you -- do you have any idea whether precocious puberty is based on -- is a psychological condition or something that can be found in, you know, blood work, for instance? Do you have any idea?

A As a nonmedical provider, I can't answer that.

Q Okay. So you testified that most -- that gender identity begins to form between ages three and five, and that that is really when we start to see gender dysphoria being manifest. And I think you put in your declaration that it is insistent, persistent, and consistent in the cross-gender identification;

is that right?
A Correct. For some children, that is when we start to hear their proclamations of their gender identity.
Q Okay. Would you agree that that is -- the traditional or classic case of childhood onset gender dysphoria is around three to five?
A I would agree with that.
Q Okay. Am I correct -- and do you want to explain at this point what the distress -- part of the diagnosis of the three to five year old, what that second component, the distress, what that looks like?
A Yeah. For a kiddo -- I'm sorry. For children that age, oftentimes we will see the manifestation of that distress in difficulties sleeping, excessive tearfulness, nighttime is that time at bedtime where you hear what's really upsetting a kiddo -- child, sorry. And it also comes out in desires not to go to school, where preschools and kindergartens are very gender separated. So opportunities for that child to be repeatedly misgendered because they're being told to line up in one line or another.

We have had five year olds who say that they want to throw themselves out of a moving car, end their life. More commonly, we see that the bellyaches, the GI distress, the headaches, and overall significant -- and it's not just a little bit. We're looking at significant distress.

Q I understand that the DSM-5 requires this finding of distress. Wasn't that also true for the DSM-IV?
A Yes. Under the diagnosis of the DSM-IV that was gender identity disorder, the distress was also needed as part of that diagnostic criteria.
Q Was that also true for DSM-III?
A Yes. Also as gender identity disorder. The terms changed with the DSM-5.
Q But they all required this level of significant distress, right?
A Correct. The one word that I would like to add is that in the DSM-5 there became flexibility for the understanding that perceived distress in childhood also warrants significant distress. So in that regard, if a child is fearful of future body changes, that qualifies as a diagnosis of dysphoria.
Q Okay. Thank you.
I want to address desistance for a moment. And my understanding is that the most likely outcome for this cohort of gender dysphoric children who present at age three to five is desistance. Is that true?
A Going back to what I said earlier about is -- if the child is actually diagnosed with gender dysphoria, through a multidisciplinary longitudinal systemic assessment process, we do not see desistance at the rates that were identified.
Q Okay.

A By --
Q Would you agree that the DSM-5 has a contrary statement?
A What statement would you be referring to?
Q Okay. Let's look at it. Could you go to defense Exhibit 17?
A I see the Diagnostic and Statistical Manual of Mental Disorders, DSM-5.
Q Could you go to the internal pages 455, or if it's ECF stamped, it's page 7 of the ECF document.
A Sorry. That print's small. 455?
Q Yes.
A Uh-huh.
Q And then under the heading, gender dysphoria without a disorder of sex development, the second full paragraph begins, Rates of persistence of gender dysphoria from childhood into adolescent or adulthood vary and, in natal males, persistence has ranged from 2.2 percent to 30 percent. In natal females, persistence has ranged from 12 percent to 50 percent.
Did I read that correctly?
A Yes, you did.
Q Okay. And so that would indicate that somewhere, what, between 97.8 and 70 percent of boys, and between 50 percent and 88 percent of girls with diagnosed gender dysphoria, the dysphoria will desist by the time they become adults, according to the DSM-5?

A You said 80 percent?
Q In natal females, persistence has ranged from 12 to 50 percent, so that would mean desistance would be between 88 percent and 50 percent; is that right?
A Oh, I'm sorry. Thank you for clarifying that. I see that.
Q Okay. Can we also go to -- if you flip over to Defense Exhibit 19.
A The Endocrine Treatment of Gender Dysphoric Gender Incongruent Persons by the Endocrine Society.
Q Yes. Are you familiar with this document?
A Yes.
Q Does your clinic use this document to treat gender dysphoric youth?
A Yes. It is used as a guideline and recommendation.
Q Okay. Can you go to internal page 3879? And then do you see under the heading, Evidence?
A Uh-huh.
Q It says -- Defense Exhibit 19.
Quote, In most children diagnosed with GD or gender incongruence, it did not persist into adolescence. The percentages differed among studies probably dependent upon which version of the DSM clinicians used, the patient's age, the recruitment criteria, and perhaps cultural factors. However, the large majority -- about 85 percent -- of

prepubertal children with a childhood diagnosis did not remain GD/gender incongruent in adolescence.

Did I read that correctly?

A Yes.

Q Okay. And then it goes on to note that social transition is associated with the persistence of GD and gender incongruence as the child progresses into adolescence; is that correct?

A Uh-huh.

Q Okay. And then I want to look at one more exhibit, which is Defense Exhibit 18. So just flip one to the left.

A Standards of care.

Q Yes. What are these?

A I'm sorry?

Q I'm sorry. What is this document?

A This is the World Professional Association for Transgender Health standards of care for the health of transsexual transgender and gender nonconforming people.

Q These are the WPATH standards that you talked about earlier?

A Correct.

Q Okay. Could you go to internal page 11?

A Yes.

Q Okay. And then that first full paragraph beginning with the second sentence. Gender dysphoria during childhood does

not inevitably continue into adulthood. Rather, in follow-up studies of prepubertal children, mainly boys, who were referred to clinics for assessment of gender dysphoria, the dysphoria persisted into adulthood for only 6 to 23 percent of children. And then I will skip the citations.

And it says, Boys in these studies were more likely to identify as gay in adulthood than as transgender. Newer studies also including girls showed a 12 to 27 persistent rate of gender dysphoria into adulthood.

A Uh-huh.

Q Did I read that correctly?

A Yes, you did.

Q So my question is: You testified earlier that you don't believe these statistics because you believe that -- I don't want to put words in your mouth. So let me see if this is a fair characterization.

My understanding of your testimony was that these statistics are all wrong because it might be that everyone was diagnosing people with gender dysphoria who, in fact, did not have it; is that correct?

A The care with which we look at the research findings needs to include the appropriateness and accuracy of a diagnosis. And that is why the DSM has continued to improve and modify the diagnosis so that we can be more clear, based on what we're understanding about gender dysphoria in children, especially as

it relates to medical care, to keep an eye on the knowledge we're gaining.

Q Okay. Well, you testified -- earlier I asked you, does the DSM-IV, does the DSM-III, they both require clinical levels of distress for the diagnosis of gender dysphoria, correct?

A Uh-huh. Yes.

Q Okay. And so I guess my question is: Why do you think all these statistics, all these studies from WPATH, Endocrine Society, DSM-5, how are they all wrong?

A I'm not saying that they're all wrong. They're guiding us to really carefully take a look at the diagnostic process. And the benefit of the care that's provided would follow children for several years and never activate medical care.

So if a child were to, as you say, desist prior to adolescence, there is no harm.

Q I guess -- all right. So what do you think the rate of desistance in childhood dysphoria is?

A I -- I would -- I don't feel comfortable giving a rate or a percentage based on that question.

Q Okay. And so on this harm aspect, wouldn't you agree that if you start someone on medical interventions and it turns out that that person would have been in the vast majority, according to the DSM-5, Endocrine Society, WPATH, of people who would have desisted but for the medical interventions, isn't that a harm?

A Potentially it could be a harm. I -- the statement I was making earlier was about the importance of not having medical care occur under puberty and being able to watch and then assess and reassess.
Q Okay. And so how do you tell if one of your patients, if his or her gender dysphoria will persist, and so that he or she is a good candidate for medical treatments?
A The duration of time, which is what -- one of the areas of diagnosis that has changed is the requirement for there to be -- you used the words insistent, persistent, and consistent evidence of the child or the young person's identity as male or female opposite to their sex assigned at birth for a significant duration of time with significant mental health improvement or stabilization when receiving medical and mental health care for their gender dysphoria and experience significant distress when not able to receive medical or mental health for their gender dysphoria.
Q Okay. And what's -- what -- I guess my question is: If -- if it is true that by adulthood the vast majority of the childhood gender dysphoric youth, their dysphoria will have desisted, but we have medical interventions before adulthood, how can you be confident that the person sitting in front of you is a persister rather than a desister?
A The comprehensive assessment that we do with the children, the parents, all of the providers leads us to that confidence.

Q Okay. Would you say that you are -- you have -- using your diagnostic criteria, that you would be 100 percent sure that the person in front of you is a persister rather than a desister?
A The assessment -- it's interesting you say 100 percent. The assessment process we use, we try to assure we are 180 percent sure that the right kids are getting the right medicine.
Q Okay. And which studies can you point to that show 180 percent chance that you have the right person in front of you, that it is a persister and not a desister?
A Hopefully soon we will have one from us. I can't point to one as you said.
Q So there are no formal studies as of this time that tell us whether -- what criteria you can use to determine whether someone desists or is a persister in front of you?
A Sorry. Can you repeat that question?
Q Yep. There are no formal studies at this time that can tell you what diagnostic criteria to use to make sure that you are confident and accurate that the person sitting in front of you is a persister and not a desister?
A The assessment process that includes longitudinal assessments with multidisciplinary team of the multi-systemic areas of a child is the ideal assessment process to determine that, to determine the appropriateness of what medical and

mental health care a child or an adolescent with dysphoria experiences.

Q Okay. Can you point to a study that provides an accuracy percentage of, you know, these children were diagnosed, and they were -- they ended up persisting, and we got it right, versus these children were diagnosed, and they were part of the majority and desisted, and we got the diagnosis wrong? Are there any studies like that?

A I would lean to Tordoff, our colleagues in -- at Seattle Children's who did a one-year longitudinal study following children who were -- youth -- sorry -- who were receiving medical and mental health care.

Q Okay. So that study showed -- those children got the intervention, right? They got the puberty blockers?

A Uh-huh.

Q And then we're saying, well, this shows that we got it right where it could also show, as the Tavistock vs. Bell decision showed, that once you start them on puberty blockers, then they're likely to persist. Isn't that also likely?

A Correct me if I'm wrong. What I heard you say was that the puberty blockers would make somebody persist. Youth persist because they're getting the right care.

Q How do you know that?

A Because they continue to do well, to have baseline of the same mental health challenges that their cisgender peers do,

and continue to thrive.
Q Can you go back with me to Defendants' Exhibit 19?
A Yes.
Q This is internal page 3876. At the very top. And these are the Endocrine Society guidelines, right?
A Yes.
Q At the very top, With current knowledge, we cannot predict the psychosexual outcome for any specific child.
Did I read that right?
A Yes.
Q Do you disagree with that?
A In general, that's an accurate statement.
Q Okay. What is -- I think -- okay. Thank you.
THE COURT: No rush, Mr. Bowdre, but tell me how long you think this cross is going to continue.
MR. BOWDRE: Your Honor, I'm sorry. At least another 30 minutes. Maybe not at least. I will do my very best to get done within 30 minutes.
THE COURT: Is there going to be some amount of redirect?
MS. EAGAN: At this point, Judge, I anticipate a short redirect.
THE COURT: Five minutes?
MS. EAGAN: Yes, sir.
BY MR. BOWDRE:

Q Just one clarifying question. When you say that in general you agree with that statement, is the -- your hesitancy to fully agree with that, is that based on the Tordoff study?
A No. It's based on the fact that we -- we can't predict any child's psycho -- psychological well-being based on human variables in life.

So if there is a trauma, if there is a challenge that occurs in someone's life, if there is additional reasons for anxiety or depression, that's why I'm saying I would not uniformly say that.
Q But I guess going back to the statistic earlier. If it's true that children are between, you know, 50 percent and 90 percent, 95 percent likely to desist, then we can predict that it is at least more likely than not that any individual child is -- will desist. Isn't that correct?
A I don't know that I would agree with that.
Q Okay. So far we've been talking about the children ages three to five. My understanding is that there is -- in recent years, the patient profile has changed to become predominantly adolescence and often adolescent girls presenting with gender dysphoria. Do you agree that?
A I would agree that there are more youth coming in who are in the 13 to 15 year old range than in the past, yes.
Q Okay. And have you seen that at your clinic?
A Yes.

Q And these -- these youth were -- are not considered the traditional gender dysphoric childhood onset class; is that true?

A There's -- there's two categories that we're seeing. The additional youth who are coming into clinics, one is teens who are identifying in adolescence that they did have an identification and -- in childhood or in earlier years that as they start to go through puberty, they realize qualified as gender dysphoria, though they didn't speak on it in the past. And there is -- right now the young people around the United States are enjoying a lot of developmental exploration around gender and sexuality, and thus increasing our needs to do very careful assessments about what type of care each child gets in its youth.

Q Okay. Let's address those in turn. What studies do you rely on for the idea that you would treat someone who identifies as an adolescent as gender dysphoric -- or as diagnosed as an adolescent with gender dysphoria for the first time, what studies do you rely on to say that the treatment, the cross-sex hormones, the puberty blockers are appropriate for that class of children?

A I -- I would lean back on some of the colleagues who have published the Achille, as well as Tordoff and the medical leaders that then guide this information and the mental health leaders.

Q Okay. One of the studies that you cite in your report is the 2014 Dutch study. Are you familiar with that?
A Uh-huh.
Q Is the one by Dr. de Vries and others from the Dutch gender clinic?
A Yes.
Q Would you agree that that is a leading study on the treatment of gender dysphoric children?
A Yes.
Q Would you agree that that study only looked at the classical onset, childhood onset age three to five for gender dysphoria?
A Yes.
Q Okay. It did not look at people whose gender dysphoria came to light when they were adolescents; is that true?
A From my recollection.
Q Okay. And so you would agree that treating adolescent onset gender dysphoric youth with those same interventions is at least not supported by the Dutch study itself; is that true?
A I wouldn't come to that summary.
Q Why not?
A Because the research and the findings they have are continuing to evolve, so I think making a definitive statement like that is not something I would do.
Q Okay. You also mentioned that you are seeing an

increasing number of people with different gender identities; is that right?

A Describe what you mean by different gender identities.

Q I'm sorry. I forget the exact wording that you used. But would you agree that gender -- that you are seeing nonbinary identifying youth?

A We are seeing an increase in youth across the sex spectrum and gender spectrum who are exploring gender, yes.

Q Okay. Would you agree that gender can be fluid?

A I see gender presentation as fluid. That's what somebody puts on themselves to express who they are. And that is -- that is something that is gaining popularity right now.

Q Okay. Does -- is there an age at which gender identity becomes set?

A Given the opportunity for typical childhood development, meaning no traumas, no challenges, no deficits in nutrition and support, we see that there is a point around six that a sense of understanding that gender is permanent in society is part of natural and normal gender development.

For many individuals, where there are challenges to healthy and typical development, whether that's from just neurological differences, family and stress differences, the understanding and solidification of gender identity can emerge at other different times, later different times in life.

Q Okay. So are the adolescents that are coming to your

clinic for the first time identifying as trans or showing signs of gender dysphoria, are you saying that those -- their gender identities were not set at the normal age; is that right?

A No. I'm saying that there's a difference between somebody who has gender dysphoria and is transgender and somebody -- a teen who is exploring their gender identity.

Between our two clinics in Philadelphia and New Jersey, we're seeing about -- we're supporting about 3,000 kids and teens. Only two-thirds of those folks are on any type of gender-affirming medical care.

So a third that are exploring their gender are in kind of those first two categories I spoke of today, either gender -- something else is going on that is not gender dysphoria, or we're in a place of continued assessment before any type of medical recommendation is made.

Q Okay. Thank you.

What studies do you rely on for the proposition that only puberty blockers and cross-sex hormones and not therapy alone would reduce suicide rates in gender dysphoric use?

A Can you say that again?

Q What studies do you rely on for the proposition that only puberty blockers and cross-sex hormones and not therapy alone can reduce suicide rates in gender dysphoric youth?

A I rely on the medical and mental health guidelines that are prepared by the professionals that review all those

studies.
Q Okay. So you testified earlier that it is your understanding that without the medical interventions, suicide rates go up; is that fair?
A For the kids who are diagnosed with gender dysphoria.
Q Okay. And your basis for saying that is just that you rely on the professionals?
A The professional organizations, yes. And, yes, I do read the research, and the Tordoff, and Olsen, and Achille, and -- and, again, look at the synthesis of each of those studies collectively and how the collective understanding that we gain from those studies are brought into guidelines and expectations for our care.
Q Okay.
MR. BOWDRE: May I have a moment to consult with my co-counsel?
Okay. Thank you, Dr. Hawkins.
THE WITNESS: Thank you.

REDIRECT EXAMINATION

BY MS. EAGAN:
Q Dr. Hawkins, after an adolescent is placed on -- an adolescent with gender dysphoria is placed on puberty blockers, do you continue to treat that adolescent?
A Yes. We continue to assess and reassess continually, checking in with family, parents, the youth, and checking on

any changes in functioning at school with any mental health.
Q In your clinical practice, have you personally observed improvement in those patients with gender dysphoria, adolescents who have been placed on puberty blockers?
A I have.
Q Describe that, please.
A The symptomology of distress, the anxiety and depression, the fear of their bodies changing can reduce greatly. And what we see -- what we've witnessed with our work with over 2000 kids is that, you know, that opportunity to have their bodies stop going in the direction that it shouldn't be going in is incredibly relieving.
Q Same question for hormones. You continue to treat those adolescents after they begin hormone treatments?
A Yes. We have continued visits.
Q And in your clinical practice, what have you observed, in regards to improvement in their psychosocial condition?
A Significant improvement.
Q Mr. Bowdre asked you about what does distress look like in a young child ages three to five with gender dysphoria?
A Uh-huh.
Q I am going to ask the question tying it to an adolescent, who is about -- who is going into puberty when medication can be started with these children that is banned by this law.
What does the distress look like, Dr. Hawkins, in an

adolescent with gender dysphoria who is being considered for medical treatment?

A In addition to all the distress that I described in childhood, the fact that adolescents can have access to more ways of harming themselves means that we often will see an addition of cutting behaviors, missing school, similar to the younger age, but it gets bigger. The consequence of missing school, the lethality of an adolescent's ability to take their own life is significantly different than a five year old. Not to minimize the importance of what I shared about a five year old. And the addition of substance use, substance abuse, as in eating disorders. Those are the layers that are added to the distress categories that we see in adolescents, all of which increase the significant lethality of not doing this care.

Q Turning to when Mr. Bowdre was asking you about Sweden. In Sweden -- and he showed you the paper -- were you aware that in Sweden that -- that -- or you saw it then. I can pull it back up -- that treatments are allowed in exceptional circumstances for children?

A Yes.

Q Or for adolescents, correct?

A Uh-huh.

Q And Sweden, in fact, has -- adolescents who are 16 can get the treatments, correct?

A Yes.

Q Okay. Alabama, unlike Sweden, their law has no exception?
A Uh-huh.
Q Correct?
A From my read of it, yes.
Q It's a blanket ban, regardless of exceptional circumstances?
A Correct.
Q Now, Mr. Bowdre also walked you through some literature from the UK. Let me ask you this just to wrap this up. Has any of the data that he reviewed with you, has any of that data changed the position of any major medical association in the United States regarding the appropriateness and the efficacy of these medical treatments for adolescents with gender dysphoria?
A Not to my knowledge. The -- what the research has advised is stronger and better assessments of the mental health to assure that the right kids are getting the right medicine at the right time.
Q Mr. Bowdre asked you about the standard of care that you described as exceptional that y'all practice with your clinic at Children's. Let me ask you this: Does the standards that are used by Children's Hospital in your practice, do those standards, the ones -- do -- does that follow recognized protocols for best care practices, the same protocols that we talked about earlier that's endorsed by every major medical association?

A I just want to clarify. I'm sorry.
Q Sure. My point is this: He was asking you, well, you don't know what other folks, what other practices do, so I can't speak for a specific practice, but you know what your practice does.

Are the practices that you follow, are those in compliance with what are the recommended practices for best treatment for children, transgender youth with gender dysphoria that's recognized by the guidelines that we talked about earlier?
A Yes. Thank you for clarifying that.

It incorporates -- the care provided incorporates the highest standards from endocrine, from adolescent medicine, from psychiatry, from psychology, all of those together, yes.
Q Okay. Mr. Bowdre asked you, Dr. Hawkins, he talked with you about some statistics that he phrased as desistance for children, which would be young children up to adults or children to adolescence, okay?
A Uh-huh.
Q When gender dysphoria, however, has persisted from childhood into adolescence, when medical treatments are being considered, what has been your experience regarding later realign -- what he's called desistance? What has been your experience on that once they have had that persisted dysphoria?
A In my experience, when a child has expressed insistent, persistent, and consistent cross-gender identity or cross-sex

identity for a significant amount of time, they persist.
Q Okay. Stated differently, if they have persisted and been consistent and insistent from being a young child up until the point of puberty and have entered puberty, in your experience, those children continued to experience gender dysphoria and continued to -- they're transgender children; is that fair?
A Correct. And they continue to require medical and mental health in support of addressing the distress from their gender dysphoria.
Q Doctor, I am going to -- let me see if I can put this up on the Elmo.
This is from plaintiffs -- excuse me -- Defendants' Exhibit 19, if you want to turn in your book.
And just to identify, these are the endocrine treatment guidelines for gender dysphoria, the clinical practice guidelines, correct?
A Yes.
Q Okay. Sorry. I was making notes on this. This is my only copy.
All right. I want to turn you to the language or some of the language that I believe that Mr. Bowdre was referring to you. And he pointed out just the first sentence, which says -- this is on -- Natural History of Children With Gender Incongruence or Gender Dysphoria.
The sentence he directed you to is, With current

knowledge, we cannot predict the psychosexual outcome of any specific child.

Do you remember him asking you about that sentence?

A Yes.

Q Let's go on into that, that section.

And I am going to start where I started outlining. And this is where they're talking about combining all outcome studies to date, the GD/gender incongruence of a minority of prepubertal children appears to persist into adolescence?

A Uh-huh.

Q Okay? And then it talks about in adolescence, a significant number of these children whose -- who identify as homosexual or bisexual. And then it goes on to say this: It may be that children who only showed some gender nonconforming characteristics have been included in these follow-up studies.

Is that the phenomena that you were talking about earlier that children are being wrongfully grouped in this that don't really have gender dysphoria?

A Yes, that was what I was referring to.

Q And then it goes on to say this: That they may have been included because the DSM-IV text revision criteria for a diagnosis was rather broad?

A Uh-huh.

Q And DSM-IV criteria, that's an older way of doing things; is that fair to say?

A Yes. Yes.
Q Okay. It's not what we use today or not what you use today?
A Correct. We use the DSM-5.
Q Okay. And then it says -- goes on to say, However, the persistence of gender -- GD, and that stands for gender dysphoria; is that right?
A Correct.
Q The persistence of GD/gender incongruence into adolescence is more likely if it had been extreme in childhood, and then it says, With the newer, stricter criteria of the DSM-5, persistence rates may well be different in future studies?
A Correct.
Q And the DSM-5 criteria, is it a more robust criteria than what DSM-IV was?
A I would say it's -- I would say one of the best editions is the duration of time and the -- just the additional layers, yes.
Q And in your clinical experience and also with the study that y'all are undergoing with -- is it your experience that with the DSM -- or in the clinical experience with DSM-5 criteria, you're seeing much higher or you're seeing high persistence rates?
A Yes. And what I would add to that is that there are more professionals who are trained in how to clearly assess

individuals for gender dysphoria or not.

Q Okay. The final thing, Dr. Hawkins, is I would like to direct your attention to Plaintiffs' Exhibit 33. These large notebooks are a little bit unwieldy.

And Mr. Bowdre asked you about a de Vries study. And I believe he said that -- he couched it as, Dr. Hawkins, do you agree that the de Vries or de Vries study is a leading study in the area of analyzing the outcome of puberty suppression and gender reassignment in young adults?

A Correct. I recall that.

Q Okay. And he -- it was his words that he said a leading study, correct?

A Correct.

Q Is Plaintiffs' Exhibit 33, is this the findings from the de Vries -- is it de Vries or de Vries?

A I say de Vries.

Q Okay.

A Sorry.

Q Is this Plaintiffs' Exhibit 33, that's a summary of the -- or the findings from that study?

A Yes.

Q Okay. And first, I would like to direct you to the background of this study. It explains puberty suppression by means of gonadotropin releasing hormone analogs has become accepted in clinical management of adolescents who have gender

dysphoria, and that's referring to puberty blockers; is that correct?
A Correct.
Q And then it says, The current study is the first longer-term longitudinal evaluation of this effectiveness in this approach.
What does a longitudinal evaluation mean, Doctor?
A This is following the youth who have been part of her clinic in the Netherlands.
Q And in this assessment, what was it that they were looking at in this longitudinal evaluation?
A They -- I mean, they were following young transgender folks who were receiving -- who had received puberty suppression and then cross-sex hormones in adolescence.
Q And in this study they then, as they aged into adults, they looked at things such as their psychological functioning, depression, and anxiety, basically how they were doing both function-wise both mentally and in life, correct?
A Correct. In particular, they utilized many psychological measures in addition to self-report.
Q All right. And then if you turn to the conclusions section on this.
A Uh-huh.
Q This was the conclusion of the study: A clinical protocol of a multidisciplinary team with mental health professionals,

physicians, and surgeons, including puberty suppression, followed by cross-sex hormones and gender reassignment surgery, provides gender -- let me back up. The gender reassignment surgery for the student -- or the people that were the subject study, that was gender reassignment surgery that was performed in adulthood, correct?

A Correct.

Q Okay. So let's go back to the conclusion. A clinical protocol in the multidisciplinary team with mental health professionals, physicians, and surgeons, including puberty suppression, followed by cross-sex hormones, and gender reassignment surgery, provides gender dysphoric youth who seek gender reassignment from early puberty on the opportunity to develop into well-functioning young adults.

Did I read that right, Doctor?

A Yes.

Q And was that the findings of the study that Mr. Bowdre called a leading study?

A Yes.

MS. EAGAN: Thank you, Doctor.

THE WITNESS: Thank you.

THE COURT: All right, Ms. Eagan. It's Conn Law 2, and we are going to see if you can book the class.

Had Alabama adopted this statute but with Sweden's exceptions, would you be here today? Does that pass

constitutional muster?

MS. EAGAN: If they --

THE COURT: If Alabama had passed this law but with Sweden's exceptions for 16 years old and for exceptional circumstances, would you be here today asking me to enjoin the enforcement of this Act?

MS. EAGAN: I will -- I -- I can't claim to be a constitutional scholar, Judge. I would anticipate -- I will say this: The way to have -- to tailor this to whatever the justification of the State is -- is not a blanket ban. That is not reasonably tailored to any liable justification. So to --

THE COURT: Would the Swedish rule be nearly tailored? I'm not going to let you off the hook here.

MS. EAGAN: Can I refer with my much brighter colleague?

THE COURT: You certainly can. Absolutely.

Let me go ahead and warn the United States. You're next.

MS. EAGAN: All right. Mr. Doss is --

MR. DOSS: I mean, I think the issue would be what are exceptional circumstances. I mean, for example, we take the position that untreated gender dysphoria would be exceptional circumstances for the reasons that we just heard from Dr. Hawkins, that if you have no medical intervention, then it can lead to increased suicide rates and depression, anxiety. We do think those are exceptional circumstances.

And so if there was no definition to the Alabama law about exceptional circumstances, or there was a definition that allowed for physician judgment in consultation with parents, and a clear assessment and a clear weighing of the risks by the parents with input from the doctors, and that was sufficient to satisfy exceptional circumstances, I'm not sure that we would be here, Your Honor. Because it would like -- it would allow room for those difficult judgments to be made.

If exceptional circumstances is something that could never be obtained as a practical matter under current medical outlooks, then maybe we would be here because it would not be narrowly tailored. There would be no narrow tailoring in the event that it categorically always and repeatedly overrode parental judgment and doctor judgment.

So as long as there's some room for discretion within that definition, it would be a different scenario, we think.

THE COURT: All right. General Garland, what do you say?

MR. CHEEK: Your Honor, I most certainly am not General Garland. I am just a lowly assistant United States attorney.

What we would say is, of course, that would still require intermediate scrutiny. And so there would have to be a substantial relation to an important government interest.

Is protecting children an important government interest?

Of course. But here -- and we'd have to look at the law and the circumstances surrounding a law that Your Honor is proposing -- is that a legitimate basis or is it pretextual or a post-hoc rationale? I think those questions would matter and potentially be material.

THE COURT: All right. I'm not going to let you off that easy.

MR. CHEEK: Sure.

THE COURT: So, I am speaking in general. If the Alabama law had Sweden's exceptions, what's your gut? Would you be here today? That's my question.

MR. CHEEK: I'm not sure, Your Honor. I mean, I have not pondered that specific scenario.

THE COURT: So you might well be here even with Sweden's exceptions? Is that what I'm hearing?

MR. CHEEK: Absolutely. That's a possibility. Sure. Sure.

THE COURT: Fair enough. All right. Thank you.

MR. CHEEK: Thank you.

THE COURT: Anybody from the State want to be heard on this?

MR. LACOUR: Your Honor, just very briefly, I will point you back to Gonzales vs. Carhart, which we cited yesterday.

In areas of medical uncertainty, the State has tremendous

ability to regulate. So I don't think the Constitution has empowered federal courts or private plaintiffs to require the State to get it absolutely just right, much less defer to the AAP or the AMA whenever we are trying to protect public health in the state.

THE COURT: All right.

MR. CHEEK: Your Honor, can I add just one additional thought?

THE COURT: Why not?

MR. CHEEK: The fact -- if it were a felony in Your Honor's hypothetical, I think absolutely we would be here.

THE COURT: Okay.

MR. LACOUR: And, Your Honor, I don't see why it would make any difference whether it's a felony or it's a physician losing their license. It's still banned, and there's not any constitutional provision they've cited that makes the question turn on the punishment that attaches to the ban.

THE COURT: All right. Are we still on track time-wise?

MS. EAGAN: I had hoped to get Dr. Ladinsky on before now, but I know it's noon, Your Honor. I mean, I could -- I would expect Dr. Ladinsky would be about the same length as my direct was with Dr. Hawkins, which I think was right at around between 30 and 40 minutes. I would expect probably about the same for Dr. Ladinsky.

THE COURT: All right. All right. I will see everybody back here, then, at 1:25. No. That clock is wrong. 1:15.

MS. EAGAN: 15?

THE COURT: 1:15.

(Recess.)

THE COURT: All right. Well, I detect that we are off track on time and that we need to get back on track.

So I will ask everybody to tighten up, and everybody knows how to do that, I'm certain.

One way of tightening up might be -- are you going to offer Dr. Ladinsky for certain purposes, I assume?

MS. EAGAN: Yes, Your Honor.

THE COURT: And those purposes will be?

MS. EAGAN: We are going to tender her as an expert in pediatric transgender care in the state of Alabama.

THE COURT: Is there going to be an agreement by the State for that tender?

MR. LACOUR: No objection, no, Your Honor.

THE COURT: No objection?

MR. LACOUR: No objection.

THE COURT: Gotcha. I realize you have to make your record, but, you know, to the extent we can get a foundation laid in lightning speed...

MS. EAGAN: Yes, sir. We are -- we have put her CV

into evidence, and so I can probably just refer to it on a couple of quick points and get moving with it.

THE COURT: Excellent. All right.

One other thing I will say before we start is the same thing that I did yesterday with evidence, I'm going to do to you again tomorrow when we give closings, which, obviously, I don't need cases. You have given me your cases.

But in your closing argument, I will want whoever is going to give those to cite me back to specific evidence that has come in through testimony or otherwise that you think would be in your top ten list on each issue.

Okay. Then are we ready for Dr. Ladinsky?

MS. EAGAN: Yes, Your Honor.

THE COURT: Okay.

MS. EAGAN: Plaintiffs call Dr. Morissa Ladinsky.

MORISSA LADINSKY, MD,

having been first duly sworn by the courtroom deputy clerk, was examined and testified as follows:

THE COURT: And you think you're 30 minutes? And, Mr. Bowdre, are you doing cross again? No. Mr. LaCour?

MR. LACOUR: I will be doing cross, Your Honor. I will try to keep it 30 to 45.

THE COURT: All right. Here we go.

DIRECT EXAMINATION

BY MS. EAGAN:

Q Good afternoon, Dr. Ladinsky.
A Good afternoon.
Q Could you please give us your full name?
A Sure. Morissa Jean Ladinsky.
Q Dr. Ladinsky, what do you do for a living?
A I am an associate professor of pediatrics. As such, I am a faculty attending physician, UAB Pediatrics, in the division of general peds.
Q Okay. And what is your area of specialty, Dr. Ladinsky?
A I am a primary care pediatrician and also a clinician educator, as such. I lead our primary care clinic team, educate the residents within that space. I colead our regional NICU follow-up clinic, and then I also colead our multidisciplinary gender health team.
Q I want to focus on the multidisciplinary gender clinic. Is that a clinic that you founded?
A It is.
Q And if you could -- I am going to mark as -- actually, there's a notebook up there, Dr. Ladinsky, that's plaintiffs' exhibits. Do you see that? There's a lot of notebooks up there.
A I'm guessing it's this one. Yeah.
MS. EAGAN: Your Honor, may I approach and help her?
THE COURT: Yes.
BY MS. EAGAN:

Q Dr. Ladinsky, could you please turn to what's been marked as Plaintiffs' Exhibit 7?
A Yes, ma'am. Okay.
Q Dr. Ladinsky, is this your curriculum vitae?
A It is.
Q And does your curriculum vitae provide a detailed outline of your background, training, education, and experience?
A It does.
Q All right. Dr. Ladinsky, are you a board certified physician?
A Yes, I am.
Q In what field?
A In pediatrics, American Board of Pediatrics.
Q All right. Dr. Ladinsky, let's talk about the gender clinic at UAB hospital. You said that it is a multidisciplinary gender clinic. What do you mean by multidisciplinary?
A Indeed it is. The clinic is held within the pediatric endocrinology space, UAB Children's. However, an entire team consisting of a pediatric endocrinologist, myself, a primary care pediatric in adolescent medicine, as well as peds to psychologists, social worker, a pediatric and adolescent gynecologist, as well as our chaplain are in that space together and work in an interdisciplinary way to make decisions and deliver the best care at each visit to our patients and

families.
Q Dr. Ladinsky, when did the UAB gender clinic open?
A Dr. Latif and I opened our doors in that space in the late fall of 2015.
Q How many gender clinics like UAB's are there in the state of Alabama?
A There are none, to my knowledge.
Q Okay. Are there any -- are you aware of any such clinics in the state -- adjacent state like of Mississippi?
A There are none.
Q Okay. About how many gender clinics like yours are there in the country?
A Approximately 55, these team-based clinics that are located in pediatric academic centers.
Q At UAB, have you treated transgender young people with gender dysphoria?
A I have.
Q How many would you estimate?
A Since our clinic's opening, we have touched the lives of some 400 to 450 youth.
Q And from where do your patients come, Dr. Ladinsky?
A Our patients come from every corner of Alabama, Mississippi, the Florida Panhandle, and occasionally the sort of southern border of Tennessee, western border of Georgia.
Q So describe the path of how a pediatric patient ends up at

your -- in your care at UAB, please.
A By all means. So about 80 percent of the patients for whom we provide care were referred to us.
This is a multi -- this is a subspecialty referral level of care. And these youth have been identified by their primary care pediatrician or family doctor in community. Many have also been seeing a mental health professional in community. They are referred to us.
The other 20 percent are youth who we first meet in consultation in the pediatric emergency center inpatient psychiatry or on the inpatient medical floors. And these are transgender youth who have entered the health care system due to suicide, severe eating disorders, or suicidal ideation.
Q So let's talk -- let's briefly focus on guidelines for the treatment of gender dysphoria and transgender youth.
Dr. Ladinsky, are you familiar with the standards that provide guidance for treating physicians for the diagnosis and the treatment of gender dysphoria in youth?
A I am.
Q And please elaborate on that.
A So standards of care by an international body of experts known as WPATH, in addition -- and does touch on -- has many -- the revised version has a lot of guidance around pediatrics. Those are standards of care. The Endocrine Society's guidelines, again, consensus bodies of high-level endocrinology

experts, digesting and continually looking at literature to prescribe the guidelines, all of this is again incorporated into a policy statement by our organization, the American Academy of Pediatrics issued in 2018.

So these provide excellent guardrails for the care that we provide.

Q These guardrails and policies and procedures that you've just mentioned, are those endorsed by every major medical association in the United States?

A Absolutely.

Q Okay.

A Especially those who touch the lives of children.

Q And do those guidelines support the use of puberty blockers and hormone treatments in pediatric -- excuse me -- in adolescents with gender dysphoria?

A They do, with very critical, you know, parameters and diagnoses.

Q Now, you were in here for Dr. Hawkins's testimony this morning?

A Yes, ma'am.

Q And you heard me when I went through and just had her identify numerous of our exhibits that are the various policies for some organizations and procedures, correct?

A That's correct.

Q All right. I'm going to focus you on one that I did not

ask her about, and that is Plaintiffs' Exhibit 32, if you could please turn to that, Dr. Ladinsky.

A Okay.

Q Dr. Ladinsky, what is this document?

A There is the 2018 American Academy of Pediatrics' policy statement that provides guidance to pediatricians throughout the nation.

Q And does this document endorse the guidelines for care that y'all follow at UAB?

A It does.

Q And very quickly, what is the American Academy of Pediatrics?

A The American Academy of Pediatrics is a body about 70,000 pediatrician members throughout this entire continent that does two things: It advocates for pediatricians, as well as for policy around the health and welfare of women and children. It also, through its expert subspecialty teams, is continually vetting the latest, most well-validated and most important research to impact the care of kids issuing guidelines and recommendations along those lines.

Q Are you a member of that academy?

A I am.

Q Is there also an Alabama chapter?

A There is.

Q And are you a member of that, as well?

A Yes, ma'am, I am.
Q All right. So let's talk about the process that y'all use at UAB, Dr. Ladinsky, for assessing a pediatric patient for gender dysphoria. Can you walk us through that, please?
A I can. And remember, patients are going -- it's individualized care based on patients' ages, physical stages, and physiology.

However, our -- most of the patients coming to us have been followed longitudinally in community by a mental health professional. Most have already been diagnosed with gender dysphoria, and together with their pediatricians have elevated a level of dysphoria warranting subspecialty insight. It's about a six-month wait to be seen.

But in that first visit, again, the assessment of mental health dysphoria underlying mental health conditions is made by our psychology team, along with information coming from their psychologist. And then all of the members of the team meet with youth and family to assess where they are and what levels of dysphoria and concern they manifest in that visit.
Q And then once you have assessed whether they have gender dysphoria and the level of dysphoria, then where do you go from there?
A Well, it is a very robust team. And there will be a good bit of this focused on support for the family, where are the parents, the household, and what concerns do they have and

share. There are resources that we provide, and mental health, if that needs to be escalated. And then the physical health for each patient.

We also look at what will be needed going forward and when we will see them again.

Q As far as the type of care that is needed, is that impacted by the age and life stage of a youth with gender dysphoria?

A Oh, absolutely.

Q Can you elaborate on that a little bit more, please, ma'am?

A For youth before puberty, our younger and elementary age kids, there is no medical treatment indicated ever for gender dysphoria in that young population. It's more about how to best address that dysphoria, and making sure that all of the different spaces and places and households where this youth navigates are coming to places of support for them.

For youth just into puberty, when immense dysphoria can ratchet up, and we are seeing severe -- we are seeing anxiety, depression, academic decline, grades plummeting, withdrawal, and parents saying, what's -- this is not my child, that's when we talk about what is needed to alleviate that dysphoria.

If putting a pause on puberty at that point is medically indicated, as well as mental health, to, you know, to uphold their mental health, and then for our older teens who have

manifested, you know, gender dysphoria for a long period of time, along with a lot of support, are they eligible and ready for hormonal therapy.

Most of our youth are with us for one to three years before any medical therapy is initiated.

Q Dr. Ladinsky, why is it that the recommended practice is to wait until a child begins puberty before you consider any type of medications for the child?

A That's critically important. We know there are some youth who may have a gender diverse or gender questioning identity during childhood that may return to align with their sex assigned at birth as puberty happens. Puberty is a very sentinel event for transgender or youth experiencing gender dysphoria.

Youth whose dysphoria is not just present, but increased in severity with the onset of a natal puberty, we know very well that those youth may -- they are most likely to contend with dysphoria life long, and they are most likely to maintain that identity life long, and they may very well merit medical therapy.

Q If -- as far as when a -- sorry.

When a patient has been determined that puberty blockers or hormones is appropriate medical treatment for them, what is the interplay of medical health providers at UAB? Do they continue to stay involved in the adolescent's care?

A They do, absolutely. Oh, goodness, yes.
Q Dr. Ladinsky, do you believe that if you support a child with their gender identity that differs from the birth sex, do you believe that then you're setting them on a path for blockers and for hormones?
A I don't.
Q Can you please explain?
A Our younger youth who manifested gender questioning or transgender identity with significant levels of dysphoria need that robust management in their identity, but they're evaluated at each -- each page and each stage.

At each visit, we're always telling our families, we're here for you. You are not here for us.

We always discuss that exit ramps are available at each age, each stage.

And then we look at where we are with dysphoria at that point in time.

Q Okay. So let's first talk about puberty blockers. Could you just explain to us an overview of what puberty blockers are?
A Sure. It's a sort of umbrella term for a family of medications known as GnRH agonists. But what these medications do functionally, especially as they're used in pediatric and adolescent care, is to place a short-term pause on the continued development of the secondary sex characteristics

aligned with puberty.

Q And how are those generally administered to your patients at UAB?

A So they are administered by injection once every three months. So that's what we call a depo preparation.

That injection needs to be administered by a trained medical professional -- a nurse, a physician assistant. And that usually once you have reached that point, the medication is usually administered by those personnel in their local pediatric office or space.

Q Okay. Are puberty blockers used only with transgender youth?

A No, ma'am.

Q What are other reasons that puberty blockers are used in pediatric patients?

A The most common, I believe, is in pediatric endocrinology for a condition called central precocious puberty, or premature puberty, when puberty begins too early. That affects about one in 5,000 kids. And they are used in the same way.

They've been used for, gosh, over 30 years for that indication with an enviable record of safety and reversibility.

Q And that was my next question, actually.

A Oh, okay.

Q So are puberty blockers considered to be safe for use in pediatric patients?

A Absolutely. For patients just into initial puberty, absolutely.
Q And are they considered to be reversible?
A They are. When the medication is stopped, puberty aligned with the natal sex will restart.
Q And when you say the natal sex --
A Uh-huh.
Q -- what do you mean by that?
A Physical puberty in line with their sex assigned at birth.
Q Dr. Ladinsky, what steps are taken at UAB before a transgender adolescent is prescribed puberty blockers?
A There will be, first of all, a robust assessment of the information coming to us from their pediatrician, their mental health provider, and in-depth time spent with their family and them, a physical examination to assess and confirm that Tanner 2 staging by our pediatric endocrinologist, as well as the input from everyone on the team.
Q Okay. And as part -- before an adolescent is prescribed puberty blockers -- let me ask you this: What are the benefits of puberty blockers for a transgender adolescent with gender dysphoria?
A The benefit is that pause button. And that just putting a hold on continued physical maturation, aligned with the sex assigned at birth, meaning for a youth whose internal sense of gender is not at all aligned with what that body is doing, that

is horrific for some gender dysphoric adolescents, and the improvement in mental health for them by freeing them up from that concern can be transformative.

Q Are there also risks?

A There are risks with any medication.

Q What are some of the recognized risks of puberty blockers?

A There may be weight gain, mood changes. There may be local reactions at the injection sites, or pain. And there is a mild, but potential brief kind of decrease in the rate of bone mineral acquisition, or the rate at which the developing bones acquire their strength.

That is short lived. And excellent data show us, though, that long term, when a hormonal puberty fills in and completes, that bone strength will unquestionably approximate youth at that same age and stage.

Q How -- I'm sorry?

A Go ahead.

Q Were you done?

A Oh, yeah.

Q Okay. Dr. Ladinsky, at UAB, how long do y'all use puberty-blocking medication with your patients?

A We view puberty-blocking medication as a short-term pause. So one or two years for most of our patients.

Q Okay.

A Two and a half at the most.

Q In your practice, have you had occasions with patients where they begin taking puberty blockers and then their gender dysphoria stops and as a teenager they align their gender ID with their birth sex? Have you had that happen at UAB?
A We have seen two or three patients with that trajectory, yes.
Q Okay. Would you describe -- how would you describe -- is that rare?
A It's uncommon, yes.
Q Okay.
A But it does underscore the whole point of using that pharmacologic intervention. It's completely reversible and gives youth time to explore that gender identity. And really feel if it innately aligns with who they are.
Q So in those rare occasions, those -- that you just described, I mean, what did y'all do?
A The blockers -- they're discontinued. Puberty aligned with their natal sex fills in.

But we ensure that they continue with their ongoing mental health therapy, and make sure that their pediatricians have great communication with us.
Q I hope -- I can't remember if I asked you this or not. I apologize.

You talked about the risks and the benefits. Before a child goes onto puberty blockers, do you have a discussion with

the parents and with the child about those risks?
A We do. Absolutely. It's a pretty lengthy discussion. And it's well documented in the medical record.
Q Let's now move to hormone therapy, Dr. Ladinsky.
A Okay.
Q What is that?
A So hormone therapy is a potential pharmacologic initiative or intervention that is undertaken with older adolescents who have manifested gender dysphoria continued over a long period of time. They have been what we call living in their identified gender, expressing with their name, pronouns, hair, their expression for a long period of time at school, at home. They have also had long-term mental health over time.

We request a written letter from their mental health provider attesting to not just their capacity to assent to hormones and to the potential risk-benefit analysis, but as well as a decision that's made by the entire team, as well as lengthy informed consent documents that are reviewed longitudinally and must be signed and agreed upon by any and all parents or guardians with legal custodial medical decision making.
Q Okay. And I am going to turn to the consent document a little bit. We have those marked as exhibits. Before I go there --
A Uh-huh.

Q -- why is it that hormone treatment is beneficial for older teenagers, transgender teenagers with gender dysphoria?
A They are finally at a point where they can further align some of the physical elements of their body with their internal sense of gender.
Q If you could turn to Plaintiffs' Exhibit 41, Dr. Ladinsky, in that notebook.
A Uh-huh.
Q You got it?
A Yes, ma'am.
Q Could you identify for us what Plaintiffs' Exhibit 41 is?
A These are the informed consent documents that are used in our clinic space for the initiation of hormones.
Q I believe there are two different forms here. If you could just identify what those are, please, ma'am.
A One is Feminizing Medications for Transgender Clients. The other is titled Testosterone for Transgender Clients.
Q How do these forms compare to what is generally used at academic-based clinics like yours, gender clinics?
A They're virtually identical.
Q And how do you use these forms?
A These forms are given to families, as well as kids -- to families and kids as they are getting closer to the time of initiation of hormonal therapy. So they have a lot of time to review them, read about them, digest them, and share them with

other family members who may not have been present at that visit. They have ample opportunity to ask questions and to make decisions together as a family and as a team.

Q Okay. And then once the -- if once they've weighed the risks and the benefits before starting them, do they actually sign the forms?

A They do. They must be signed in multiple places by all legal parents and guardians, as well as assent by those kids.

Q What about a situation where parents are divorced, but both have some level of custody over the child, or joint custody or custodial rights? How does that work with consent for these treatments?

A If parents are divorced or not together, but they have shared legal medical decision making, both parents must not only sign the forms, but be offered time and space and opportunity to ask questions of us.

Q If both parents do not consent, what happens?

A Hormonal therapy is not initiated.

Q Dr. Ladinsky, what are the hormones that you generally use for these hormone treatments in these older teens?

A For our trans ladies, those assigned male at birth with a female identity, primarily estrogen, which is taken orally. For our trans men, our trans guys assigned female at birth, testosterone.

Q Is testosterone and estrogen prescribed to nontransgender

adolescents?
A Absolutely.
Q For what purposes?
A So estrogen is used in pediatric endocrinology for -- well, both for genetic and/or metabolic congenital challenges where the body may not produce ample amounts of either hormone. It's quite common in pediatric endocrinology.
Q And what about testosterone?
A The same.
Q And how long has that been the practice, Dr. Ladinsky?
A Decades and decades.
Q Are puberty blockers and testosterone and estrogen you use in your practice, are those FDA approved medications?
A They are FDA approved medications, yes.
Q Okay. For the -- how they are used in your clinic, is that considered to be what's called an off-label use?
A It is. And off-label use of medications is very, very common in the medical profession.

In fact, the FDA recognizes that its approval gives the medical profession the peace of mind we need, that rigorous safety and efficacy trials have been done in this age group. We have that, along with 35 years of such for GnRH agonists.

But the FDA allows physicians clinical judgment and leeway to use medications in similar clinical entities.

Q Okay. And are there other examples that you can think of,

of use of medications that may -- hormones for off-label uses that's a common practice?

A That's quite common in medicine.

Estrogen in what we know as a combined birth control pill is used frequently among teenage girls, teenage young ladies to manage acne, to deal with very, very difficult, very, very heavy periods, polycystic ovary syndrome, which can induce that. Progesterone alone can be used to cease menstrual migraines. It's very, very common.

Q Dr. Ladinsky, based on your clinical experience, research, clinical experience and research in your field, what is the -- let me back up.

Let's talk about your clinical experience with your patients. What have you observed to be the benefit in your parents with the use of hormonal therapy?

A Oh, my gosh. To see gender dysphoria averted, abated, you will see a radiance, a self-confidence, but most importantly, we see teenagers who have been sullen, withdrawn, failing academically, not interested in the activities and peer groups they used to be in, join the world in ways they hadn't before.

Academic prowess soars. We see graduation. We see higher education. But most importantly, we also see youth who manifested severe anxiety and depression sometimes even self-harm and cutting to see that long gone is incredible.

Q In your clinical experience, Dr. Ladinsky, for those

patients of yours who have undergone hormone treatments, either past patients or present patients, how many of those patients have expressed regret or retransitioned to their birth sex?

A In our clinic population, those who have received medical therapy and gone on, we have seen none. It doesn't mean it doesn't happen. But in our clinic population, none.

Q Dr. Ladinsky, the use of puberty blockers and hormone therapy in transgender adolescents and teens with gender dysphoria, are those experimental treatments?

A Oh, no, ma'am.

Q Are those types of treatments, is that taught to the future doctors in medical schools as recommended care?

A Oh, it is. It is --

Q Is the -- I'm sorry. Go ahead.

A Absolutely. It's part of the standard curriculum in American medical schools per the AAMC since at least 2014.

Q Is the topic of transgender medicine, do you find that on state board exams for doctors?

A You do. You find it on -- you will find a few questions for students in graduating on their licensure exams, and it will absolutely be on the board certifying exams in several medical specialties.

Q Okay. I want to move just very briefly to the topic of gender transition-related surgeries.

Dr. Ladinsky, are any type of gender transition-related

surgeries performed here in the state of Alabama on transgender minors?

A Not to my knowledge.

Q Do the established guidelines for the treatment of gender dysphoria recommend gender transition-related surgeries for minors?

A The established guidelines recommend waiting until the age of legal majority for gender-related surgeries.

Q Okay. Dr. Ladinsky, you were here again for Dr. Hawkins's testimony this morning, and you heard Mr. Bowdre ask Dr. Hawkins about some reviews and recommendations coming out of the United Kingdom. Are you familiar are those reviews and recommendations coming out of the UK?

A I am aware of them. I'm not familiar with them in intimate detail.

Q Why don't you follow those recommendations and reviews more closely?

A Recommendations coming out of the UK and some of the other countries are quite applicable to refining best practices, selecting patients appropriately and judiciously within the health care systems of those nations.

The health care system in the United States is very, very different from the United Kingdom. Our decentralized system of health care allows for those 55 very high level subspecialty pediatric academic settings to evaluate and manage gender

dysphoria.
Q And just to make sure it's clear, when you're talking about the system being decentralized and 55 treatment centers, I believe you said the United Kingdom -- were you referring to the United States?
A I meant the United States, yeah. The United Kingdom has one.
Q Okay. Dr. Ladinsky, based on your general understanding, what do you know about the efforts to either narrow or expand access to blockers or hormones in the United Kingdom?
A I know that the United Kingdom is not just formally recommending, but working very hard to design and implement wider-spread subspecialty centers of excellence to expand access to that care appropriately.
Q All right. Dr. Ladinsky, are you familiar -- I will just say you're familiar with SB 184 which was the law, of course, that we are here about today?
A Yes, ma'am, I am.
Q Has the American Academy on Pediatrics taken a position on SB 184?
A They have.
Q Has the Alabama chapter taken a position on SB 184?
A Oh, indeed they have, and both have condemned it.
Q Okay. And if you could look Plaintiffs' Exhibit 30 in the plaintiffs' exhibits, is that actually the written position

statement by the American Academy of Pediatrics and the Alabama chapter on this law?

A I'm getting there. It is.

Q If you could turn also, Dr. Ladinsky, to Plaintiffs' Exhibit 31?

A Okay.

Q Have other state medical associations' chapters taken a similar position to the American Academy of Pediatrics opposing SB 184?

A Absolutely. This exhibit portrays the formal statement made by the Alabama Psychological Association. They were also very active with us --

Q Okay.

A -- in, you know, advocating against this bill of the Legislature. As well, I don't see it here, but the Alabama chapter of the American Academy of Family Practice.

Q Okay. If you could turn to Plaintiffs' Exhibit 19, please, Dr. Ladinsky.

A Okay. I think I got it. There you go.

Q You there?

A I think so. Yep.

Q Okay. Dr. Ladinsky, are you familiar with this document, Plaintiffs' Exhibit 19?

A This is the Yale, yes, ma'am.

Q What is this document?

A So this document was released very recently by a compendium of three mental health and medical professionals in front line care who provide the same gender care that we do, as well as an attorney, to analyze point by point, aggregate all of the data and evidence in this nation to sort of illustrate and articulate how the evidence-based standard of care practices are contradicted and -- by both the Alabama VCCAP law, as well as the Texas Attorney General's opinion.

Q And you said that there are three mental health care providers. So were there three other medical doctors, pediatricians, endocrinologists?

A Correct.

Q So six --

A There are six.

Q -- there are scientists, and doctors, and MDs, and Ph.D.s total?

A Six clinicians, scientists, medical providers, and one attorney.

Q Okay. In this document, do the authors also cite a number of peer-reviewed studies that contradict some of the supports or the principles that the State articulated as the reasons for SB 184?

A They do. A considerable compendium of them.

Q All right. Dr. Ladinsky, if SB 184 goes into effect, what impact will that law have on medical providers in Alabama who

treat transgender youth?

A For the medical providers, which is myself, my teammates, this will force us into a place of risking a felony conviction for providing evidence-based standard of care medicine, or turning our backs on our Hippocratic Oath and literally doing harm.

Q Dr. Ladinsky, what impact will this law have on transgender youth here in Alabama who suffer from gender dysphoria?

A For those who are not yet receiving medication, but one day live in that hopes of doing so, or of their families knowing that there is care for them, if that becomes needed, you will see an escalation of mental health challenges, and you will see families with levels of stress that are inexplicable and unfair.

For youth who are already receiving these medications, this would be an unprecedented ask of us to abruptly stop that care and treatment, which is medically contraindicated, especially in the place with testosterone. That is a medical contraindication. No matter the use. You don't just stop that. That will take these youth to very dark places. And we are fully aware of many of those places from which they came.

You will have colossal mood swings, mental health decline, the potential for self-harm, and possible suicidality. This is not even a hypothetical.

One year ago, when the Arkansas Legislature enacted this law over the Governor's veto, in the seven days following that override, my counterpart there had five of her youth show up at that emergency room with severe suicide attempts. The final one, that young man was in an operating room for ten hours with two different teams of surgeons to save his life.

We're Alabama. We're better than this.

Q Thank you, Dr. Ladinsky.

CROSS-EXAMINATION

BY MR. LACOUR:

Q Good afternoon, Dr. Ladinsky. My name is Edmund LaCour. I am here on behalf of the State defendants.

A My pleasure.

Q It sounds like you are strongly opposed to SB 184; is that fair to say?

A It is.

Q Why did you drop your challenge to that law on April 15th, 2022?

A Under advisement of counsel, I did so.

Q And -- okay. Do you still oppose the law even though you're not challenging it?

A Yes, sir.

Q All right. And do you know who Jeff Walker is? Jeffrey Walker?

A I do.

Q In full disclosure, I am not asking you to disclose anything that's not already in the public record. Did you appear on a YouTube video with him on April 8th, 2022, for a livestream press release run by the human rights campaign in response to SB 184?
A I'm not aware of that.
Q All right.
A I would be happy to see it.
Q One moment. Let me -- we may get to that in a moment.
A Okay.
Q So you were here for Dr. Hawkins's testimony; is that correct?
A I was, yes.
Q She was unable to define sex for us. Do you recall? She was asked to define sex and said she was not able to do that?
A I don't recall that.
Q Okay. Well, would you be able to provide your definition of sex just so we can be working with the same definitions?
A In the context of the youth with whom we're talking about and this law is directed to, we talk about sex assigned at birth, which is a combination of physical attributes when a baby is born, as well as, if needed, what we call the genotype, the genetic makeup of that individual.
Q Okay.
A As far as sex chromosomes, XX/XY.

Q Okay. And those are not things that can be changed, are they, the genotype?
A No.
Q Okay. Now, we've talked a little bit today about what's experimental, perhaps. What would -- in your view, what would you say constitutes experimental medicine?
A In a center such as the one where I practice?
Q Just generally.
A Just generally. An experimental treatment would be a drug or an -- a medical intervention that is part of a very, very tightly controlled clinical trial, a trial that has been granted, you know, granted a yes or no -- granted the ability to do so by an institutional review board, which strictly upholds the ethical rights of human subjects. So to us, an experimental treatment is a treatment that is being studied in a very tightly controlled clinical trial.
Q Would one reason you would be studying this type of treatment would be to determine what the risks might be of the treatment course?
A Possibly. But generally it's more about efficacy.
Q Okay. But with any drug, right, I mean, there are going to be benefits and there are going to be risks, correct?
A That's a fair statement.
Q And so whether it should be made available or prescribed to someone would turn both on the potential benefits and the

potential risks, correct?
A Correct.
Q Would you consider a medical treatment to be well established if its risks are unknown?
A I think there are many, many, many medical treatments that are well established with a long track record of critically studied safety and efficacy, but there may still be long-term effects that are not completely known.
Q Okay. So there can be well-established treatments with unknown risks?
A I feel there can, yes. And that's all information that is discussed with -- in my situation as a pediatrician -- parents and families, you know, if that -- if the choice is to consider that medication, yes.
Q Okay. Now, you submitted a declaration in this case, did you not?
A I did.
Q You didn't cite any research in that declaration, did you?
A That I have personally been a part of?
Q Any studies or research whatsoever in the declaration?
A I don't believe so.
Q Okay. Did you review any studies or literature reviews or other research in putting together the declaration?
A We're continually doing that. It's part of our job.
Q Okay. I think you did reference one study a moment ago

when Ms. Eagan was questioning you, the -- from the AAP. It's their policy; is that correct?

A Oh, yeah. We did touch on that. It's an exhibit.

Q Yes. I think Plaintiffs' Exhibit 32.

Could you turn with me to Defendants' Exhibit 2?

A Do I have --

Q Probably --

A Is that it?

Q That might be it. Ours had a blue piece of paper on the front. So if you see blue --

A It's blue. Yep. Defendants' exhibit list.

Q Thank you.

A Which one, sir? I'm sorry.

Q Number 2.

A Number 2?

Q Yes, ma'am.

A Gotcha. Okay.

Q So if you will turn to page 100, going by the blue numbers at the very top of the page.

A Okay.

Q Okay. So are you looking at an article by James Cantor entitled Transgender and Gender Diverse Children and Adolescents, Fact Checking of AAP Policy?

A It appears to be.

Q Great. And I will put this on the Elmo, as well.

A Oh, great.
Q The highlighting is mine.
A Okay.
Q But if you see that first sentence, the American Academy of Pediatrics, AAP, recently published a policy statement entitled Ensuring Comprehensive Care and Support For Transgender and Gender Diverse Children and Adolescents.

Is that the same study you were referencing when you were talking to Ms. Eagan?
A Yes, sir, it is.
Q I will continue. Skipping a couple of lines.
A Okay.
Q Although almost all clinics and professional associations in the world use what's called the watchful waiting approach to helping transgender and gender diverse GD children, the AAP statement rejected that consensus, endorsing only gender affirmation. That is, where the consensus is to delay any transitions after the onset of puberty, AAP instead rejected waiting before transition.

With AAP taking such a dramatic departure from other professional associations, I was immediately curious about what evidence led them to that conclusion. As I read the works on which they based their policy however, I was pretty surprised, rather alarmed, actually. These documents simply did not say what AAP claimed they did. In fact, the references that AAP

cited as the basis of their policy instead outright contradicted that policy, repeatedly endorsing watchful waiting.

Did I read that correctly?

A You did.

Q Are you aware of whether AAP ever responded to this article?

A I am not, sir. I have not seen this before.

Q Okay. Now, Dr. Ladinsky, are you aware of Sweden's National Board of Health and Welfare and the statement they put out in February of 2022?

A I am not intimately apprised of that.

Q Okay. Could we turn to Defendants' Exhibit 11? Specifically to page 3.

A Okay.

Q I will put it up here again. You see the part that I marked with my pen. I will represent to you that this is that document from Sweden's National Board of Health and Welfare.

It states, For adolescents with gender incongruence, the board deems that the risk of puberty-suppressing treatment with GnRH analogs and gender-affirming hormonal treatment currently outweigh the possible benefits, and that the treatments should be offered only in exceptional cases.

Did I read that correctly?

A You did.

Q And are you aware of this position out of Sweden?
A I confess that I am not intimately associated with the position statements of other nations. Their health care systems, as I've said, are very different than ours.
Q Uh-huh.
A But I'm acquainted with ours.
Q So I mean, based on the statement, would you conclude that the Swedish Board of Health and Welfare would deem puberty blockers cross-sex hormones to be well-established treatment for gender dysphoria in youth?
A I could not comment on the truth or falsity of that statement based on what I'm seeing.
Q Thank you.
So you said earlier that treatment with puberty blockers and cross-sex hormones for gender dysphoria youth is well established; is that correct?
A Yes.
Q When did it become well established?
A Well, tell me what you -- give me your definition of well established so I can make sure we're --
Q Perhaps --
A -- the same.
Q -- the definition you used earlier.
A Sort of becoming evidence-based guideline-driven standards of care.

Q Sure.
A Okay. So this work has been done in pediatric academic centers in the U.S. since 2006. The guidelines issued by the pediatric endocrine societies around, you know, specific to pediatrics really fine tuned what we call the guardrails or the standards of care along with WPATH probably by about 2010.
Q Okay.
A Roughly.
Q Did you hear the discussion earlier about the WPATH guidelines? And would you say that they are well established when the WPATH guidelines were released, I believe it was 2011 or 2012, the current version?
A The current version standards of care. I think they were, you know, getting to that place, but I'm still -- you know, the term well established is very relative.
Q Would they have been experimental back then?
A No.
Q No. Okay.
A Okay.
Q But they were established enough even though at the time they found rates of desistance of as high as 80 percent. Is that your position?
A That 80 percent figure applied to youth before entrance to puberty. That's my -- that's my recollection of that.
Q You talked about some of the positions AAP has taken,

particularly SB 184. Do they wade into other potentially controversial issues sometimes?

A I'm not aware of what you mean by that.

Q Are you aware of whether AAP has taken a position as to whether adolescents should have access to abortion without having to inform their parents?

A I am not aware of that. I do know that the American Academy of -- the American Academy of Pediatrics absolutely views itself as a non-political physician association. And I'm not aware of that stance.

Q Do you think they represent the views of all pediatricians?

A I don't think anyone can represent the views of everybody who's a member of their association or group. I think they do a phenomenal job in refining and prescribing evidence-based standards of care.

Q So I think you said earlier that you've treated about 450 patients for gender dysphoria; is that right?

A I think.

Q Correct me if I'm wrong.

A We've touched the lives of about 400 to 450 patients referred to us or who we've met in the hospital and followed since we opened in 2015.

No more than a third of them, though, have received medication relative to gender dysphoria, at least the type that

are discussed in SB 184.

Q Okay. What's the youngest age for which you have prescribed puberty blockers?

A Remember that it is relative to the age at which that youth, with persistent dysphoria, et cetera, is at a physical Tanner 2 staging with definitive entrance to puberty.

For someone assigned female at birth, that's going to happen earlier. And there may be, I think, 11 years, is probably the earliest.

Q Okay. What percentage of children who you have prescribed and who have taken puberty blockers have gone on to take cross-sex hormones?

A The majority of them.

Q Would you say it's sort of in the 75 percent range, or the 90 percent range, or the 50 percent range?

A I'm going to have to estimate for you, and I will tell you why in just a second. But I would estimate it's more like 85 percent.

In the state of Alabama, the majority of youth presenting to our clinic, especially in our early years, really having not had the opportunity to take advantage of this and also given some of our more Alabama norms, et cetera, have realized at later ages, or have not had the chance to access this medicine.

So the vast majority of our patients initially presented to us as older adolescents. We now have kind of the first

cohort of younger youth who are eligible for blockers and who are transitioning over. It's at least 85 percent, if not higher, considerably, yeah.

Q That's helpful.

THE COURT: Mr. LaCour, when you get to a stopping point, we will take a ten-minute break.

MR. LACOUR: I will be looking for one, and I will try to take one shortly, if that's okay.

THE COURT: All right.

BY MR. LACOUR:

Q Has UAB clinic performed double mastectomies on any transgender youth?

A Before the age of legal majority?

Q Correct.

A Absolutely not.

Q Okay. So and why not?

A It is not -- it is not indicated per the guidelines of our profession that surgical procedures are taken before the age of legal majority. It is also not covered by the major insurers in the state of Alabama. But it is the best care for these youth, we feel, in our clinic setting that surgical interventions are not undertaken before the age of legal majority.

Q And why is that?

A Youth must be at a level of maturity. And their families

would agree that they need to be at an age where they consent legally to their own care before a very permanent intervention is undertaken.

We agree with the guidelines recommendation in waiting until the age of legal majority.

Q Because there are potentially permanent and irreparable harms that could occur from a transition surgery?

A That's a fair statement.

Q Are there any potential irreparable harms that could occur from starting a child on puberty blockers and then continuing them on cross-sex hormones?

A There are side effects to any medication regimen, but we do not see these medical initiatives in that way. They're small side effect risks.

Q What about fertility?

A We don't see them in the same way at all.

Q What about permanent loss of sexual function?

A Great question. Puberty-blocking medications, when introduced at Tanner Stage 2 and used in a short-term way, there's excellent longitudinal data to bare out that loss of sexual function is not part of the long-term picture.

Q What do you mean by short term?

A One to three years.

Q And you said you had some kids who were taking it for up to two-and-a-half years?

A One to three years, yes.
Q What if they then move from puberty blockers to cross-sex hormones?
A Correct. Then, you know, there are -- we get -- we go from puberty blockers to cross-sex hormones.

So they will only go through one puberty. And their mental health in our estimate, after rigorous, rigorous time and work, will be absolutely enhanced by it.

Could there be longer-term risk, potential risks to fertility? It is possible. They're mild. But long discussions are held around this. The informed consent process is huge.
Q And what about sexual function? If a child never goes through natural puberty and goes through the puberty of the opposite sex --
A Uh-huh.
Q -- I mean, how does that affect their ability for sexual pleasure, for intimacy, for example?
A We do not see longer term problems with that. It may not happen in the conventional ways, but there is, you know, the presence of tissue that underscores that, that is not harmed.

And, you know, the majority -- all of our youth basically enjoy age-appropriate developmentally healthy relationships because their mental health allows it. We have not seen long-term problems in this.

Q Is it your position that there is no risk of fertility loss?
A That is not my position. My position is especially in the use of estrogen for a trans woman, someone assigned male at birth, there is a small risk of, you know, like lessening or possibly impairing future fertility.
MR. LACOUR: I apologize, Your Honor. If I could have a few more minutes, I think we will be at a stopping point.
THE COURT: I'm not trying to end your cross. I was just going to take a break and let you continue. But you define your own stopping point.
BY MR. LACOUR:
Q If you would turn to Plaintiffs' Exhibit 41. I think we talked about this earlier. This is the informed consent form from your clinic, I believe. Please confirm that for me.
A I have to get there. It's all the way at the back.
Okay. 41 is -- 41 is not this. It's Sydney's essay.
Q Plaintiffs' - I think you have the defendants' binder. You can look at the plaintiffs' binder.
A Okay. I will look at this. I'm sorry. I was in the other one.
Okay. I can see it right here.
Q Great.
A Uh-huh.
Q Does this look familiar to you?

A It does.
Q If I represented that this was --
A Yes.
Q -- the informed consent form?
A Uh-huh.
Q Let's look at some of the highlighted portions.
A Yeah.
Q First, I know that my body will make less testosterone, androgen, or male hormone. This may affect my sex life in different ways and future ability to cause a pregnancy.
Did I read that correctly?
A You did.
Q The options for sperm banking have been explained to me?
A Correct. Yes.
Q Let's go down a couple more lines.
A Okay.
Q I know I may not be able to achieve or maintain an erection for penetrative sex.
Finally, I know this treatment may but is not assured to make me permanently unable to make a woman pregnant.
A Correct.
Q So there are risks of infertility from these treatments, is that correct?
A There are, correct.
Q Permanent irreversible damage, correct?

A Correct. And you see it right there in the informed consent form. These are difficult discussions, but they're lengthy, and they're had over time.
Q If a natal female who is 17 --
A Uh-huh.
Q -- cannot provide informed consent to a mastectomy, how could a 14-year-old boy who is maybe just beginning puberty consent to giving up his ability to ever have sexual intercourse?
A We would not be starting -- in our clinic and in how we do what we do in Alabama, we're not starting these medications on a 14 year old. But to get to the larger question, which is an excellent one, for the initiation of hormonal therapy, regardless of that patient being 17 or 15, parental informed consent is actually what this form requires legally, and then the youth will assent.
Q Why couldn't a parent consent to her natal female child's double mastectomy?
A I suppose she could if she wanted to, but she would not find that care in my institution.
Q Okay. Well, how, then, is it that a mother could consent to her natal son, her natal 15-year-old child's potential loss of ability to ever father a child of this person's own?
A So, first of all, you have highlighted the options for sperm banking have been explained to me. And many of our young

ladies do elect that option. And we help facilitate that care for them. So they can bank gametes.

If they one day want that potential to be there and, you know, realize -- and then we have, you know, significant discussions about this.

Q Do you think a child is able to fully comprehend what it might mean to not have sexual intimacy if that child has never had sexual intimacy, they've never been through puberty even because they have been put on puberty blockers?

A I think it's individualized. But remember that in this nation, and remember that the care that we're giving is a very, very robust risk-benefit analysis.

These are some of the risks. They are not 100 percent guaranteed to happen.

And then that has to be weighed with this family, the entire team, mental health, around the gravity of that person's gender dysphoria relative to their incongruence. That's the decision that's being made in a very longitudinal robust way. It's a risk benefit.

Q You had a 16-year-old girl who came to your clinic, natal female, cisgender, every female in her family has received female circumcision, and she is greatly distressed because she is the only one who is not.

A Uh-huh.

Q She is convinced that receiving this procedure would

alleviate these concerns and allow her to fit in better with her family and her peers. Could she consent to that procedure?
A In the United States, no.
Q Through a medical ethical sense, could she provide informed consent to that procedure?
A She could only provide informed assent. Youth under the age of legal majority for any surgical procedure in the United States requires the consent of their parents or legal guardians.
Q If the parents were also on board with this procedure from a medical ethical perspective, could that consent be provided for female genital circumcision?
A Regardless of whether the consent was provided or not, that procedure in the United States is contrary to the standards of care for pediatric surgeons, or urologists, or plastic surgeons. That procedure is not performed in this nation.

It is judged that the harm outweighs the benefit. And that is how the American system, the American surgical associations have judged it.
Q It's also how the federal government has judged it, correct?
A I'm not informed on the federal government's stance to female genital mutilation. I'm sorry.
Q Are you aware have any states have banned the procedure?

A I'm sorry. What?
Q Are you aware of whether any states have banned that procedure?
A I am not. I would believe it's banned throughout the United States. It's not standard-of-care medicine.
Q All right.
MR. LACOUR: I think this is a good stopping point, Your Honor.
THE COURT: Excellent. All right. Let's take a ten-minute break.
(Recess.)
THE COURT: Let's pick back up. Where are we on time?
MR. LACOUR: I will probably be done in about ten minutes.
THE COURT: Okay.
BY MR. LACOUR:
Q Thank you, Dr. Ladinsky, for being back with us.
A Of course.
Q So I wanted to touch very briefly on something you discussed with my colleague from the other side.
If you could turn to Defendants' Exhibit 1, it's in the defense booklet.
A In your booklet, correct?
Q Yes.
A Okay.

Q Or if you would like to wait, I can put it on the big screen for you.
A Can we do both? SB 184, correct?
Q Yes. Specifically, page 6, Section 4(a).
A Section 4(a).
Q Yes. And let me explain why we're turning here.
A Sure.
Q You stated earlier that if SB 184 went into effect, then youth who are on testosterone would have to stop immediately. Is that your understanding of the law?
A That is my read from Section 4, number 1, testosterone is administered by injection. So...
Q So can I draw you to some language in 4(a) that I underlined here, where it says paraphrasing a little, but --
A Okay.
Q -- for the purpose of attempting to alter the appearance or affirm the minor's perception of his or her appearance -- of his or her gender or sex, if that appearance or perception is inconsistent with the minor's sex as defined in this Act.
A Okay.
Q So, Dr. Ladinsky, if you were tapering one of your patients off of testosterone, would that be for the purpose of attempting to alter the appearance or affirm the minor's perception? Or would that be for a different purpose?
A I'm assuming that -- are you assuming that the

testosterone is being prescribed to address gender dysphoria?
Q If it had been prescribed to address gender dysphoria --
A Uh-huh.
Q -- but that course of treatment can no longer continue, and you were then trying to responsibly taper the patient off of the testosterone?
A Okay.
Q Would that be for the purpose of attempting to alter the appearance, or would that be for a different purpose?
A It was initiated for the purpose described in the law, so I would assume that administering the medication would thus be against the law.
Q Thank you.

So I mentioned earlier a livestreaming press conference from April 8th, 2022, the day the law went into effect. And you said you did not recall being a part of this human rights campaign organized press conference from just a month ago?
A I don't recall being part of a press conference, no, sir.
Q Do you recall being part of any sort of livestreaming event or videoconference call with the human rights campaign with attorneys from the National Center for Lesbian Rights or with Mr. Jeff Walker?
A I don't.

MR. LACOUR: Your Honor, at this time, I would like to admit Defendants' Exhibit 42. It's not on our list, but it is

a YouTube video of this press conference.

I believe it will show, Dr. Ladinsky, at this -- whether you define as a press conference, a livestream event. I'd like to just confirm that this is her and that it's Jeff Walker.

THE COURT: Any objection?

MS. EAGAN: I haven't seen the video, but I don't think so, Judge.

THE COURT: All right. It will be admitted.

MR. LACOUR: It will be short.

BY MR. LACOUR:

Q So, Dr. Ladinsky, does that appear to be you?

A That is a not flattering picture of me.

Q None of us have loved the Zoom age.

MR. LACOUR: Christopher, if you could hit play.

(Whereupon, Defendants' Exhibit 42 was played in open court.)

BY MR. LACOUR:

Q Does that refresh your recollection?

A It does. I'm not sure -- I don't recall it being -- anyway.

Q Sometime earlier this year?

A Evidently.

Q Okay.

A Ooh.

Q Unplug for now.

A Yeah. Thank you. Thank you.
Q I apologize for that.
A No apologies needed. That was me.
Q So you do know Jeff Walker, correct?
A I do.
Q Okay. And are you aware that he filed a lawsuit around the same time that you did challenging SB 184?
A I believe so.
Q Do you know why he dropped his lawsuit around the same time you dropped your lawsuit on April 15th?
A I do not. And I have not spoken with him in a very long time.
Q Okay. After you dropped your lawsuit, did you recruit any patients, colleagues, or doctors to join the present lawsuit?
A No. How do you mean recruit?
Q Did you reach out to any of them and suggest that they should file suit instead of you?
A No.
Q I will represent to you that yesterday your attorney, Mr. Doss, stated that the four patient plaintiffs in this case are patients of yours or have been treated by you at some point. Is that accurate?
A One of them, I believe, is on a wait list to be seen.
Q Okay.
A The others I do believe so.

Q Okay. Thank you.

Changing gears just a little?

A Sure.

Q Back to the science.

What is a normal testosterone range for a 12-year-old boy?

A It depends where that boy is in puberty.

Q Uh-huh.

A Some are at the very, very beginning. Some have not even entered. And then there are other 12 year olds who may be well into puberty. So that would be hard for me to actually say.

Q A boy who's entered puberty, what would be the normal range for him?

A I have to say I am not a pediatric endocrinologist. And I am not encyclopedic as to normals. I would know exactly where to find it.

Q Okay. I think you discussed earlier there are some natal males who suffer from testosterone deficiencies; is that correct?

A That can be, yes.

Q Okay. And would you prescribe a boy suffering from that condition testosterone if it would bring his levels up to a normal range?

A That -- so youth with this myriad of clinical challenges, or, for example, side effects secondary to medications they took for or for chronic illnesses, like inflammatory bowel

disease, Crohn's, or cancer, that work would be undertaken by our pediatric endocrinology team. I, as a general pediatrician, would absolutely refer that youth there if he was not already being seen by them.

Q Okay. With the understanding he would likely receive testosterone to bring his levels up to the levels of a normal boy?

A They would undertake the initiation of that as their clinical practice dictates.

Q Okay. If --

A That is what they do.

Q If there was a second boy who came to with you normal levels of testosterone who wanted the same dose as that first boy for purposes of raising his testosterone to abnormal levels because he's in body building and feels his muscles are too small, would you send that kid to the pediatric endocrinologist for the purpose of obtaining testosterone treatment?

A That would not be an indication for referral. And, in fact, that would be un -- I mean, that would be an unideal use of that medication, not be clinically indicated.

Q That would be a different treatment altogether, wouldn't it?

A It would.

Now, if a parent demanded to see the endocrinologist for such, as a primary care physician, I would say, I will -- I

will order that referral and allow you that consultation.
Q Okay. And similarly, using puberty blockers to treat precocious puberty --
A Uh-huh.
Q -- is also a different treatment than using puberty blockers to treat gender dysphoria, correct?
A Well, it's the same treatment given to youth.
Q How -- sorry. Go ahead.
A It's the same treatment that is given to youth at similar physiologic ages. However, the clinical entity for which it is being initiated is different.
Q I thought -- I mean, isn't it true that some children are started on puberty blockers because they're starting puberty around age four or five, if they are -- if they're suffering from precocious puberty?
A That would be, if they met the, you know, endocrinologic indications, yes.
Q So it's a very different treatment to prescribe a child suffering from precocious puberty a puberty blocker to move them into the normal range for beginning puberty than it is to prescribe a puberty blocker to a child who's starting puberty at the normal age and push him to a later age than normal for puberty; is that right?
A When both scenarios, center precocious puberty and significant gender dysphoria, both of your theoretical youth

would be at roughly a Tanner Stage 2 physiology. And they would both have medical indications for that pause button.

Q All right. And you discussed earlier the importance of parental rights, correct, or parental input in the process of informed consent and ensuring that these children are able to properly balance the risks and the benefits of puberty blockers and cross-sex hormones, correct?

A I did. Yes, that's correct, sure.

Q Now, your gender clinic also has social workers, correct?

A Correct.

Q What role do they play?

A Social workers, the biggest role they play is in working with not just the youth and family around the supports that they may need and helping them align with resources throughout the state and in their community for support when raising a transgender or gender dysphoric youth.

Q Okay.

A And all the administrative things that they do.

Q Have your social workers ever worked with a child to terminate a legal guardianship relationship between the child and his or her guardian?

A In our clinic setting, no.

Q Dr. Abdul Latif works with you, correct?

A Correct.

Q Did you participate with him on September 14th, 2021, in

on online program for the American Medical Women's Association?
A That was -- within our institution at UAB?
Q Yes.
A Yes.
Q Do you recall him -- do you recall him recounting how there are children who are transgender who do not have supportive parents who start communicating more with our social workers trying to find what is a path for them to go? One of them was actually very successful that the child made a case of changing who their guardian is and ended up coming to the clinic because of their child's advocacy?
A I recall that, and I recall that very unique case. That was the case of a young teen who actually was in a very abusive relationship within his family. I mean, he was -- if I recall, under -- he was the victim of physical abuse in that household.

He himself contacted our social worker at the time via e-mail to dialogue and to understand what supports might be available to him. As time went on, if I believe, and the abuse worsened, for I'm certain reasons that transcend this youth's gender identity and dysphoria, custody of the young man was awarded to an older sister who, as I recall, was over the age of 21.
Q Okay. And then it was with his sister's consent that he was able to begin these treatments?
A I believe so.

Q Okay.
A But there was a -- I mean, there were years in between.
Q Okay. Is that the only circumstance you can remember where a social worker helped to have a legal guardianship terminated and then the clinic treated that patient?
A That's the only situation I'm aware of. But I'm not sure, sir, to what extent.
Our social worker actually -- and I would beg to differ with the term facilitated because such reassignments is under the purview of the Alabama Department of Human Resources. Social workers don't have that power.
Q Okay. Thank you.
And once again, you are not a plaintiff in this case?
A Correct.
Q So you are not seeking injunctive relief?
A That's correct.
Q Okay. And if injunctive relief is not extended -- is extended only to the plaintiffs in this case, is it your understanding that would apply to you, as well, and you would be able to continue to prescribe these medicines?
A I'm sorry. Can you define injunctive relief?
Q Basically, the plaintiffs in this case are asking the Court to order the defendants not to enforce the law against them. You are not asking the Court to not enforce the law against you, though, correct?

A I believe that the plaintiffs are asking the Court to keep the law from going into effect. That was my understanding.

Q Okay. All right.

MR. LACOUR: I think that might be it for me, Dr. Ladinsky. Thank you for your time.

THE WITNESS: Oh, my goodness. Thank you very much.

MS. EAGAN: No questions, Your Honor.

THE COURT: All right. All right. May the witness step down?

All right. Thank you.

THE WITNESS: Of course. Thank you, sir.

THE COURT: Are we ready for the minor witness?

MR. DOSS: Yes. We will call Megan Poe, Your Honor.

THE COURT: Ladies and gentlemen, at this time, the parties have an agreement that this testimony would be heard in camera, which would mean only the attorneys and myself. And for the reasons that were put forward in the motions to proceed under pseudonym, I have granted that agreement.

So at this time, I'd ask everyone please to step out into the hall. And then the marshals will let you know when you can come back in.

Thank you.

(In camera:)

(THE FOLLOWING PORTION OF THE RECORD IS FILED UNDER SEAL AT THE DIRECTION OF THE COURT)

No. 22-11707

UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT

PAUL A. EKNES-TUCKER, et al.,
Plaintiffs-Appellees,

&

UNITED STATES OF AMERICA
Intervenor-Plaintiff-Appellee,

v.

GOVERNOR OF THE STATE OF ALABAMA, et al.,
Defendants-Appellants.

On Appeal from the United States District Court
for the Middle District of Alabama
Case No. 2:22-cv-184-LCB

APPELLANTS' APPENDIX VOLUME XI OF XIII

Christopher Mills
SPERO LAW LLC
557 East Bay St.,
#22251
Charleston, SC 29451
(843) 606-0640
cmills@spero.law

Steve Marshall
Attorney General
Edmund G. LaCour Jr.
Solicitor General
A. Barrett Bowdre
Thomas A. Wilson
Deputy Solicitors General
James W. Davis
Deputy Attorney General
Benjamin M. Seiss
Assistant Attorney General
STATE OF ALABAMA
OFFICE OF THE ATTORNEY GENERAL
501 Washington Ave.
Montgomery, AL 36130
(334) 242-7300
Edmund.LaCour@AlabamaAG.gov

July 5, 2022

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(continued)

(End of in-camera examination.)

(Recess.)

THE COURT: All right. Did I hear 15 or 20 minutes?

MR. DOSS: That is my aim, Your Honor.

THE COURT: All right. Let's proceed.

MR. DOSS: Your Honor, plaintiffs call Pastor Paul Eknes-Tucker.

PAUL EKNES-TUCKER,

having been first duly sworn by the courtroom deputy clerk, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. DOSS:

Q Would you mind stating your name for the record, please, sir?

A Paul Eknes-Tucker.

Q What's your occupation?

A I am pastor of Pilgrim Church in Birmingham.

Q And sometimes people all you Pastor Paul?
A They call me Pastor Paul, yeah.
Q How long have you been a pastor at Pilgrim Church?
A Seven years.
Q What kind of church is it?
A It's part of the United Church of Christ denomination.
Q For how long have you been a pastor?
A I've been a pastor for 45 years.
Q Did you grow up in Alabama?
A I was born in Alabama, grew up here until I finished college at Birmingham-Southern.
Q Did you obtain any education after Birmingham-Southern?
A Moved to Atlanta to go to seminar at Candler School of Theology at Emory University.
Q Have you always been with United Church of Christ?
A No. I started out as a United Methodist. That's my birth denomination.
Q All right. And were you always United Methodist before you became United Church of Christ?
A No. I was part of the Metropolitan Community Churches for the interim part between those two.
Q Over the course of your 40-plus year career as a pastor, have you had occasions where parents have come to talk to you about their child who is transgender?
A In every congregation I have served in those -- the last

40 of the 45 years, there has been either persons in my congregation that were transgender, or people in the community I served at that sought me out about issues around their transgender children or relatives.

Q And those sorts of circumstances when folks are coming to you to talk to you about their transgender children, what kind of concerns are the parents voicing to you?

A All kinds of things. Primarily, there would be religious issues. Often parents felt they could not talk to their pastors of their home churches because they weren't sure exactly how to -- this would play in their home churches, how they would feel about their child identifying this way.

THE COURT: Mr. LaCour, just to give you fair notice, I am likely to ask you the same question at the conclusion of his testimony that I asked at the conclusion of Dr. Koe.

MR. DOSS: Thank you, Your Honor.

BY MR. DOSS:

Q When parents come to you about these issues, Pastor Paul, what kind of advice do you give them?

A I try to talk about their questions, particularly around religious issues. Those are the things I feel like I can talk about. And then I try to connect them to resources in the community to whatever kinds of things they are looking to find, we try make sure they can get those resources.

Q Those resources sometimes include medical help?

A They do.
Q In the past, Pastor Paul, have you helped connect parents with transgender minors to doctors who provide gender-affirming care for patients?
A I have.
Q And generally speaking, do you understand that gender-affirming care for minors can include, for example, puberty blockers and hormone treatments?
A Yes.
Q Are you familiar with UAB's gender clinic for children?
A I am.
Q And since becoming aware of the UAB gender clinic, if you had a parent come to you telling you I have a transgender minor, would you consider recommending to that parent that the parent take the kid to that clinic?
A I would.
Q Having seen the law that we're here about today, do you have concerns that doing what you just described would run afoul of that law?
A I do. Having read the part that says that anyone who is accused of having a cause for connecting someone with a medical professional could be criminalized through this law. And that could include someone like me.
Q Have you had an occasion over your years of being a pastor to see kids who have been transgender and have received medical

help and who have flourished?
A Yes.
Q Are you aware of other clergy in the state of Alabama who share your concerns that you have expressed to me today about this particular law?
A Yes. In fact, after I was contacted to be a part of this case, I told other clergy friends and colleagues in Birmingham area, and word began to spread. And we created a letter for other clergy to sign on to about this issue, about supporting families with transgender members. And as of today, there are over 80 clergy from across Alabama who, if I couldn't have been here today, would have been willing to step into my place.
MR. DOSS: One moment, Your Honor.
All right. I appreciate your time here today, Pastor Paul. Attorneys for the State defendants may have some questions for you now.
THE WITNESS: Thank you.

CROSS-EXAMINATION

BY MR. MILLS:
Q Good afternoon, Pastor.
A Good afternoon.
Q My name is Christopher Mills, and I represent the State defendants. I thank you for being here today.
Could an individual obtain from you a puberty blocker medication?

A No.
Q Could they obtain a cross-sex hormone?
A No.
Q Could they obtain a surgery for gender transition purposes?
A No.
Q Have you advised minors or their parents that a minor should submit to any of those specific procedures?
A No.
Q Have you advised minors or their parents that their religion requires them to submit to any of those specific procedures?
A No.
Q Your medical advice is limited to suggesting that those you counsel seek professional help; is that right?
A I don't give medical advice. I try to connect folks to where the resources are.
Q You mentioned just a minute ago, when I was contacted before this lawsuit. What did you mean?
A When the attorneys asked me if I would be interested in being a part of this lawsuit.
Q And when did that happen?
A The Monday after Easter.
Q That was April 18th; is that right?
A That sounds right. I think so.

Q And before you were contacted by the attorneys, had you considered filing a lawsuit against this law?
A I was not sure how in the world to be -- to make a difference. So this was a great opportunity that I felt honored to be a part of.
Q Before you were contacted by them, you didn't think the law criminalized your ministry, did you?
A I didn't know.
Q And when the attorneys called you, what did they say?
MR. DOSS: Your Honor, I am going to object, to the extent this calls for privileged communications between counsel and him. It is privileged, attorney-client communication.
MR. MILLS: Your Honor, there was no attorney-client relationship at this point.
MR. DOSS: Communications in anticipation of creating that relationship.
For example, if I go meet with an attorney and discuss generally my problems, that can include privileged communications.
MR. MILLS: But this client wasn't seeking an attorney. The attorneys contacted him.
THE COURT: From what I have heard right now, we have got privilege. If you want to voir dire him some more and see, but from what I see, we have got privilege.
MR. MILLS: That's fine, Your Honor. I will move on.

BY MR. MILLS:

Q So after they contacted you, you agreed to become a plaintiff in this lawsuit; is that right?

A Yes.

MR. MILLS: Thank you. No further questions.

THE WITNESS: Thank you.

MR. DOSS: Nothing further, Your Honor.

THE COURT: All right. And does that conclude your witnesses?

MR. DOSS: It does, Your Honor.

THE COURT: The United States has a witness; is that correct?

MR. CHEEK: Your Honor, if I may.

THE COURT: Uh-huh.

MR. CHEEK: Throughout today, we have been trying to streamline our presentation. And so we may not have a witness. We just need to go over the evidence from today and confer with our group, if that's okay, and then make that determination. So...

THE COURT: If you are telling me you are speeding my trial up, that's always going to be okay.

MR. CHEEK: Can we have at least 30 minutes, or do we want to...

THE COURT: Is that a decision you just want to make in the morning?

MR. CHEEK: That's fine with us. Whatever the Court prefers, obviously.

THE COURT: And y'all correct me if I am wrong. It does seem like we're back on track with time. Everybody agree with that?

You know, if I take 30 minutes and then you say, no, we've waited here 30 minutes. If I take 30 minutes, and then we do call a witness, then we're here at 6:00 o'clock. I'd say it's a better use of everybody's time.

We'll call it a day today. Come back at 9:00 o'clock in the morning.

I appreciate what you have said, and that will give you plenty of time to make your mind up.

MR. CHEEK: Thank you, Your Honor.

THE COURT: So I know we have had just up and down and off and on air conditioning today. And so Judge Thompson has graciously offered to let us use his courtroom tomorrow. On the off chance that GSA gets this normalized by 8:00 o'clock in the morning, we will come back here. If they don't, we are going to go to 68-degree air and not have to suffer anymore.

So stand by, and I'm sure that my courtroom deputy will find a way to get the word out if we decide to change things in the morning.

MR. CHEEK: That is a welcome change.

MR. DAVIS: May I ask one thing?

THE COURT: Absolutely.

MR. DAVIS: If the United States does not call a witness, we are certainly prepared to begin with Dr. Cantor at 9:00 in the morning. I do not know that he will last all morning. He very well may. I think probably would.

If he doesn't, our next witness, I do not expect to be here before about 12:30. We had anticipated it would be later in the afternoon.

She's driving. She is the individual, Sydney Wright, who detransitioned. She's driving from her home near the Georgia line. I don't think I could get her here any earlier.

I'm asking the Court if it would be okay if there happens to be a gap between Cantor and this next witness of -- it should not be long.

THE COURT: How long a witness do you think that your last witness would be?

MR. DAVIS: I think my direct will be probably about a half an hour.

THE COURT: Okay. So, yeah, if you -- if we're leaving room for the United States in the event they do have a witness, and then your first witness, I think that probably works out about right, and we're still finished by 1:30 or 2:00 o'clock.

MR. DAVIS: It sounds like if the United States does call a witness, there is zero risk -- we are great with time

with both of our witnesses going tomorrow.

If the United States does not call a witness, when Cantor finishes, our second witness may not be here, but it won't be long before she does arrive.

THE COURT: That's okay. We can always slide lunch up a little bit if we need to.

MR. DAVIS: We appreciate the courtesy.

THE COURT: Absolutely.

Any other procedural matters we ought to take up today in anticipation of tomorrow?

MS. EAGAN: No, Your Honor.

THE COURT: Okay. All right. Excellent.

Well, then, I will see everybody at 9:00 o'clock again in the morning.

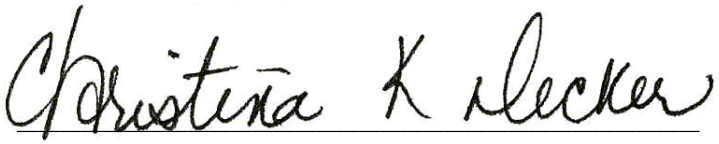
We will make the decision early about moving courtrooms. We won't make that decision at 8:59.

All right. Anyway, thank you. Have a good day.

(Whereupon, the above proceedings were concluded at 4:50 p.m.)

CERTIFICATE

I certify that the foregoing is a correct transcript from the record of proceedings in the above-entitled matter.



05-08-2022

Christina K. Decker, RMR, CRR — Date

Federal Official Court Reporter

ACCR#: 255

DOC. 105

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER, et al.,	*	
Plaintiffs,	*	2:22-cv-00184-LCB
	*	May 6, 2022
vs.	*	Montgomery, Alabama
	*	9:00 a.m.
KAY IVEY, in her official capacity as Governor of the State of Alabama, et al.,	*	
Defendant.	*	

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TRANSCRIPT OF PRELIMINARY INJUNCTION HEARING
VOLUME II
BEFORE THE HONORABLE LILES C. BURKE
UNITED STATES DISTRICT JUDGE

Proceedings recorded by OFFICIAL COURT REPORTER, Qualified pursuant to 28 U.S.C. 753(a) & Guide to Judiciary Policies and Procedures Vol. VI, Chapter III, D.2. Transcript produced by computerized stenotype.

CHRISTINA K. DECKER, RMR, CRR
Federal Official Court Reporter
256-506-0085/ChristinaDecker.rmr.crr@aol.com

APPEARANCES

FOR THE PLAINTIFFS:
Melody Eagan, Esq.
Jeff Doss, Esq.
Amie Vague, Esq.
LIGHTFOOT, FRANKLIN & WHITE, LLC
The Clark Building
400 20th Street North
Birmingham, Alabama 35203

Brent Ray, Esq.
KING & SPALDING
353 N. Clark Street
12th Floor
Chicago, Illinois 60654

Michael Shortnacy, Esq.
KING & SPALDING
633 W. Fifth Street
Suite 1600
Los Angeles, California 90071

Jason R. Cheek, Esq.
US ATTORNEYS OFFICE, NDAL
1801 Fourth Avenue North
Birmingham, Alabama 35203

John Michael Powers, Esq.
Coty Montag, Esq.
DOJ-Crt
Civil Rights Division
950 Pennsylvania Avenue
Washington, DC 20530

FOR THE DEFENDANT:
James W. Davis, Esq.
Edmund LaCour, Esq.
Barrett Bowdre, Esq.
Benjamin Seiss, Esq.
Christopher Mills, Esq.
OFFICE OF THE ATTORNEY GENERAL
501 Washington Avenue
P.O. Box 300152
Montgomery, Alabama 36130-0152
(334) 242-7300

COURTROOM DEPUTY: Deena Harris

COURT REPORTER: Christina K. Decker, RMR, CRR

I N D E X

P R O C E E D I N G S

(In open court.)

THE COURT: Good morning. Please be seated.

All right. I am going to aim my question at you, Mr. LaCour.

You heard the testimony of Pastor Eknes-Tucker. What, if anything, in his testimony would trip the Alabama statute?

MR. LACOUR: Your Honor, we don't think anything in his testimony would trip the statute, as you said. The key language is does he engage in or causing the prescription or administration of puberty blockers? Is he engaging or causing the prescription or administration of the cross-sex hormones?

Clearly, he is not under the plain text of the statute, so we don't think he has standing, which I think is probably good news and bad news for him. But the good news is he is not going to be prosecuted. The bad news is he doesn't get to -- in his words -- make a difference by continuing in this case.

But that's the State's answer.

THE COURT: All right. Since he has addressed standing, anybody want to touch on that from the plaintiffs' side?

MR. DOSS: Yes, Your Honor.

Our concern remains that under this Act's language, it does capture speech for referrals, for actions by people who are counseling patients, or people who are counseling anyone to

put them in touch with medical providers knowing full well what those medical provisions may or may not be.

I think this does also feed into the void for vagueness argument, Your Honor, because the State is making these post-hoc decisions about when the statute does apply, despite its plain language and when it does not apply.

So we still think that the statute on its face is triggered. We appreciate the State's statement on the record that it doesn't think that the statute is triggered.

On the other hand, it shows just how vague the statute is, that we can't know just by reading it, which violates the Fifth Amendment rights' notice.

THE COURT: All right. One other thing that I will put the parties on notice about when we get to closings.

So I assume everybody has read the Arkansas order and transcript. Would that be a correct statement?

All right. So I would like everybody to be able to address at the conclusion of these proceedings what parts of that order, if any, that they disagree with, why, and to what degree those -- that legal reasoning is applicable here. And I know that we do have some differences in that statute.

So just put that in your back pocket, and let's be prepared to talk about that.

Okay. So I understand the United States has a witness this morning; is that correct?

MR. POWERS: Yes, Your Honor.

Before we get started, I have a quick bit of housekeeping. The United States moves to admit United States Exhibit Numbers 1 through 12.

09:11:36 MR. BOWDRE: No objection, Your Honor.

THE COURT: Be admitted.

MR. POWERS: Thank you. Now, the United States would like to call Dr. Armand Antommaria to the stand.

THE COURT: All right.

09:11:47 ARMAND ANTOMMARIA,

having been first duly sworn by the courtroom deputy clerk, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. POWERS:

09:12:15 Q Good morning.

A Good morning.

Q Doctor, could you please introduce yourself for the Court?

A My name is Armand Herbert Matheny Antommaria. I am a pediatrician and bioethicist. I am employed by Cincinnati 09:12:32 Children's Hospital Medical Center where I direct its ethics center. I'm the Lee Ault Carter chair of pediatric ethics and an attending physician in the division of hospital medicine.

THE COURT: Mr. Powers, I neglected to ask you how long you think this witness will be.

09:12:51 MR. POWERS: Well under half an hour.

THE COURT: Okay. All right.

BY MR. POWERS:

Q Doctor, do you hold an MD from the Washington University School of Medicine?

09:13:01 A I do.

Q Do you hold a Ph.D. from the University of Chicago Divinity School?

A Yes.

Q Doctor, what are your areas of specialty?

09:13:09 A As a physician, my area of specialty is pediatric hospital medicine. So I take care of general pediatric patients, patients with asthma or pneumonia, who are admitted to the hospital. And I'm also a bioethicist and specialize in pediatric clinical ethics.

09:13:31 Q Thank you.

Can you please explain what a bioethicist is?

A Bioethics is a multidisciplinary field that addresses the ethical issues that arise in medicine and the life sciences.

Q Doctor, are you board certified?

09:13:48 A I am. I am board certified in pediatrics and in pediatric hospital medicine. And I'm also certified as a health-care ethics consultant.

Q Are you part of a multidisciplinary team that provides treatment to adolescent patients with gender dysphoria?

09:14:07 A Yes. Cincinnati Children's has a clinic that provides

care for children and adolescents with gender dysphoria, and I participate in their monthly multidisciplinary team meetings, as well as consult on an as-needed basis when special ethical issues arise in the care of the patients that they treat.

09:14:34 Q And are the sorts of ethical issues that do arise when you're consulted regarding the care of transgender patients?

A At times, there are issues regarding who is able to provide informed consent, whether adult patients have medical decision-making capacity or ethical issues when there are

09:14:55 unusual risks or benefits involved in the care of a particular patient.

Q Are you involved in the development of treatment protocols related to treating adolescent patients with gender dysphoria?

A Yes, to the extent that they have ethical issues in

09:15:10 particular. I participated in the development and the periodic review of the clinic's informed consent documents.

Q Thank you, Doctor.

As part of your duties, do you consult with medical providers on the treatment of infants and children with

09:15:28 differences in sex development?

A Yes. Cincinnati Children's also has a clinic that provides care to individuals with differences of sex development. And I participate in similar ways in that multidisciplinary's team meetings both in terms of patient care

09:15:50 and in terms of gender policies.

Q Thank you.

MR. POWERS: Your Honor, the United States moves to have Dr. Antommaria qualified as an expert in bioethics and treatment protocols for adolescents with gender dysphoria.

09:16:05 MR. BOWDRE: No objection, Your Honor.

THE COURT: All right. He will be accepted for that purpose.

MR. POWERS: Thank you.

BY MR. POWERS:

09:16:11 Q Dr. Antommaria, is a diagnosis of gender dysphoria made by physicians and other medical professionals, or is it made by the patient or the parents?

A A diagnosis of gender dysphoria is made by clinicians.

Q And are there external indicators that can be evaluated as

09:16:29 part of that process?

A Yes. There are patient behaviors that can be observed that support the diagnosis such as, you know, missing school or other behaviors which can be observed that support that diagnosis.

09:16:48 Q Doctor, as part of your work, are you familiar with research studies, systematic reviews, and clinical practice guidelines in a variety of areas related to pediatric care?

A Yes, I am.

Q And are you familiar with studies, reviews, and guidelines

09:17:06 regarding treatment specifically for adolescents experiencing

gender dysphoria?
A Yes.
Q And what is the difference between research and clinical care?
09:17:17 A Research and clinical care are differentiated both in terms of their goals and their methods. So the goal of research is to generate generalizable knowledge. And the methods are the use of a protocol that defines the steps in a study.
09:17:36 Clinical care's goal is to provide benefit to individual patients, and its procedures are individualized decision making.
Q And what is the difference between observational studies and randomly controlled trials?
09:17:51 A So the two big categories of studies are observational and experimental.
In observational studies, the investigators don't control who's exposed to the intervention. The most -- one of the common forms of an observational study would be a prospective
09:18:15 observational study in which individuals who receive a treatment are followed over time to see the effects of that treatment.
In experimental studies, the investigators control who receives the intervention. Commonly in a randomized controlled
09:18:31 trial, neither the participant nor the investigator controls

who receives the treatment or the intervention or the control. People analogize randomization to a coin flip in terms of determining who receives which.

Q And, Doctor, do you have an opinion about the viability of conducting randomly controlled trials testing the use of treatment, like puberty blockers and hormone therapy, for adolescents with gender dysphoria?

A Yes, I do. I would have concerns that randomized controlled trials of these interventions would be unethical, and even if they could be ethically performed, they would have substantial methodological limitations.

Q And what are the ethical concerns first?

A In order for a research study to be ethical, particularly a randomized controlled trial, there must exist something called equipoise. The investigator must believe that the intervention and the control are each likely to be equally efficacious. And many investigators in this field would believe that there is sufficient evidence of the benefit of the use of puberty blockers or gender-affirming hormone therapy that a randomized controlled trial would not be ethical.

In addition, you would need to be sure that the study could be completed. For example, that you would have enough participants sign up to be in the study to make exposing them to the risks of the study to be beneficial. And there would be concerns that not enough participants could be recruited to

such a trial to be ethical.

Q And do you have any additional methodological concerns regarding randomly controlled trials?

A Yes. One of the key factors in a randomized controlled trial is they're what's called blinded, but neither the participants nor the investigators know whether the participants is receiving the intervention or the control.

And in a randomized control trial of this nature, it would be -- not be possible to blind investigators that are participants because they would know which -- what's called an arm, which arm the participant is in by the development or lack of development of secondary sexual characteristics. So such a randomized controlled trial would be of substantially less value.

Q Thank you.

Now, what's the difference between a systematic review of the literature and a clinical practice guideline?

A So in a systematic review of the literature, the individual will collect all of the evidence and -- relevant to a particular outcome and grade the quality of that evidence.

Systematic reviews of the literature, however, do not make treatment recommendations. Just because the level of evidence for intervention might be low doesn't mean that that intervention should not be used.

A clinical practice guideline both evaluates the quality

of the evidence, makes treatment recommendations, and grades the quality of those recommendations, because there are many other factors rather than in addition to the quality of the evidence that need to be considered in making treatment recommendations.

09:22:09

Q Doctor, can a clinical practice guideline be based on the results of observational studies?

A Yes, they can. And frequently in pediatrics, clinical practice guidelines are based on observational studies, because unfortunately there are fewer randomized controlled trials available in pediatrics than in adult medicine.

09:22:27

So other Endocrine Society guidelines for other pediatric conditions like congenital adrenal hyperplasia or obesity are largely based on observational studies. And even treatment guidelines for important crucial things, such as the American Heart Association's guidelines for performing CPR in children, are largely based on observational studies.

09:22:50

Q I think you might have mentioned one of them already, but what guidelines help establish the standard of care when treating adolescents with gender dysphoria?

09:23:08

A The two predominant clinical practice guidelines for treating adolescents with gender dysphoria would be the Endocrine Society's and WPATH's.

Q Thank you.

09:23:23

Is the level of evidence supporting these puberty blockers

and hormone therapy in these guidelines comparable to the level of evidence for other treatments in pediatrics?

A Yes.

Q Doctor, are you familiar with the European policies, with respect to treating adolescents diagnosed with gender dysphoria?

A I am.

Q And could you please summarize your understanding of that?

A So in part, particularly reference has been made to the Swedish policy. That policy is only available in an official English translation of a three-page summary.

So it's difficult to fully evaluate these policies, given the limited amount of material that's available in official English translation.

But my understanding of the policies are that they have reviewed the literature, but they use less robust methods than the Endocrine Society, because they neither grade the evidence nor the strength of their recommendations, and that none of the policies instantiate a ban on gender-affirming health care, the use of puberty blockers or gender-affirming hormone treatment.

Q Thank you.

Doctor, are you familiar with the provisions of Senate Bill 184?

A I am.

Q Are the provisions of Senate Bill 184 consistent with the

guidelines issued by any country in Europe?
A No.
Q Doctor, once a diagnosis of gender dysphoria has been made, how does the informed content process work in the pediatric context?
A In the pediatric context, parental consent is required -- in general, parental consent is required for treatment.
Adolescents should participate in medical decision making to the extent that it is appropriate, and for adolescents, their assent should also be sought.
And the informed consent process requires a discussion of the potential benefits, risks, and alternatives of the treatment.
Q Doctor, do you have an opinion as to whether puberty blockers and hormone therapy treatments have benefits to some adolescents diagnosed with gender dysphoria that outweigh the potential risks?
A Yes. That for some individuals with gender dysphoria the benefits of treatment outweigh the risks.
Q And what role does desistance play, or what our friends have referred to as desistance play in your analysis?
A So in evaluation of the risk, if treatments are discontinued, there may be effects of those treatments, which are only partially reversible. But that is only one of the factors that needs to be weighed in the risks and benefit

analysis. And that the evidence about the current rates of desistance are that it is sufficiently low, that that would not be in general a reason not to proceed with treatment.

Q Thank you.

09:26:43 Is there high quality evidence supporting the alternative of psychotherapy alone, so without the assistance of puberty blockers and hormone therapy? Is there high quality evidence supporting that as a treatment for gender dysphoria in adolescents?

09:27:03 A I am not aware of any randomized controlled trials of psychotherapy alone for the treatment of adolescents with gender dysphoria.

Q As an ethicist, do you have an opinion regarding parents and adolescents' ability to adequately understand the potential

09:27:23 cause and benefits in giving informed consent to the provision of puberty blockers and hormone therapy?

A Although this decision involves a complex set of risks, benefits, and alternatives, it is comparable to other decisions that parents and their children make in pediatric health care

09:27:42 on a frequent basis.

Q And in the instance that there was a medical provider who violated their ethical obligations to their patients with respect to obtaining informed content, are there forms of oversight in place?

09:27:57 A There would be multiple mechanisms to address those

potential shortcomings. If that provider worked for a health-care institution, they would be credentialed by that institution. The institution would have a responsibility for oversight of their practice.

09:28:14 The state medical board could review their practice and potentially discipline them or withdraw their license.

And although I am not a lawyer, it's my understanding that there would be the potential for malpractice claims for inadequate informed consent.

09:28:32 So there are multiple mechanisms that exist to address the case in which somebody obtained inadequate informed consent.

Q So there are other mechanisms in place other than a direct ban on the treatment itself?

A Yes. I'm sorry. You're correct.

09:28:48 Q Doctor, I would like you to consider a circumstance where adolescents no longer have access to puberty blockers or hormone treatments. Are there any equally effective alternative medical treatments for adolescents with gender dysphoria?

09:29:03 A There are not.

Q Is there an ethical basis for distinguishing the provision of treatment to minors experiencing precocious puberty, from transgender minors experiencing gender dysphoria?

A There is not.

09:29:19 So in particular, the type of evidence for both treatments

are the same. The evidence supporting the use of puberty blockers for the treatment of central precocious puberty are also prospective observational trials with relatively small numbers of participants.

09:29:42 There are no randomized controlled trials to support the use of puberty blockers for central precocious puberty.

Q Compared to treatments in other contexts, is there anything about treatments for adolescents with gender dysphoria that would require prohibition by the State from an ethical

09:29:58 perspective?

A No.

Q And last question, Doctor. What are the ethical implications for medical providers treating minors diagnosed with gender dysphoria if Senate Bill 184 is implemented?

09:30:11 A They would be unfortunately placed in the untenable position of either violating their ethical obligations to their patients to conform with the law, or fulfilling their professional duties to their patients and being criminally charged.

09:30:28 MR. POWERS: Thank you. No further questions.

THE COURT: Cross?

CROSS-EXAMINATION

BY MR. BOWDRE:

Q Good morning, Dr. Antommaria. My name is Barrett Bowdre.

09:30:53 I represent the State defendants.

A Good morning.
Q You agree, don't you, that most individuals who experience gender dysphoria in childhood desist?
A The evidence would support that individuals who experience
09:31:18 gender dysphoria at young ages such as three or four, that the majority of them do desist.
Q You noted that the goal of clinical practice is the individualized assessment in providing care for the individual patient that you're treating. But no clinician can accurately
09:31:45 predict whether the patient sitting in front of him will persist in their gender dysphoria or will, as the majority do, desist; isn't that correct?
A So at the point of evaluating an adolescent, the desistance rate is substantially smaller than it is for the
09:32:11 desistance rate of young children, and that there would be the ability to be fairly certain that they are unlikely to desist. But expecting perfection in the practice of medicine and being able to predict with 100 percent certainty is unrealistic because there's nothing in health care that can occur with 100
09:32:36 percent certainty.
Q Can you predict with 80 percent certainty whether the individual patient sitting in front of you will persist or desist in his or her gender dysphoria?
A The evidence of which I am aware would suggest that the
09:32:53 desistance rate is -- for adolescents is substantially less

than 80 percent. If the desistance rate for adolescents -- I apologize -- is substantially less than 20 percent.

Q Is that for adolescents who are treated with puberty blockers, or adolescents who are not treated with medical interventions?

A The most robust data that is available are adolescents who are treated with gender-affirming health care.

Q So can you tell with 80 percent certainty whether an individual patient, an adolescent who is not treated with puberty blockers, would desist or persist in the gender dysphoria?

A So the evidence base in that area is less robust, but the evidence of which I'm aware would still suggest that the desistance rate for individuals who are adolescents is less than 20 percent.

Q And what studies do you rely on to say that it's -- I mean, for adolescents -- we're talking about a 12 or 13 year old who has entered what, Tanner Stage 2 of puberty; is that correct?

A Correct.

Q Okay. So what evidence do you rely on to say that without treating with puberty blockers the group who are not treated there's a more than 80 percent likelihood that the individual patient is going to desist to that point?

A So I would say that that is based on -- so I am not aware

of a specific prospective observational trial that answers your question, but that experience in the field would suggest that that -- the desistance rate is low.

Q And what is that experience?

09:34:47 A Of the clinicians who provide care to this patient population.

Q I guess my question is -- I'm trying to figure out -- I understand that the majority of children who are started on puberty blockers go on to cross-sex hormones. Is that true?

09:35:02 A Can you restate your question?

Q The majority of children who are -- who start on puberty blockers will then go on to take cross-sex hormones; isn't that right?

A Correct.

09:35:16 Q Okay. And so my question is: If a child does not start on puberty blockers, what degree of certainty can we say that the gender dysphoria would go away? And we are talking about a Tanner Stage 2 adolescent.

A So I would differentiate the likelihood of them desisting

09:35:42 from the quality of evidence that supports that claim. The likelihood of them desisting based on the available evidence would be that it would still be infrequent, the evidence is -- would currently be based on expert opinion of individuals who provide that care.

09:36:01 Q Okay. So there are no studies to support that claim; is

that right?
A I'm not aware of a study on that specific question.
Q Okay. Would you agree that the combination of puberty blockers and cross-sex hormones -- let me start over.
09:36:24 Because you testified that most children who begin on puberty blockers go on to cross-sex hormones, wouldn't it be reasonable when we're talking about the risks to view those together?
A No.
09:36:42 Q Why is that?
A Because they occur at separate periods of time. So that informed consent is obtained for the use of puberty blockers, there are ongoing conversations about the efficacy of that treatment and the individual symptomology, and a separate
09:37:01 detailed informed consent process is obtained prior to the start of gender-affirming health care.
Q But wouldn't it be relevant to a parent or a child determining whether to start puberty blockers to know that almost everyone who starts on this treatment goes on to
09:37:18 cross-sex hormones?
A It would be relevant for parents to know that the clinical practice guidelines for the treatment of gender dysphoria generally recommend treatment with puberty blockers followed by treatment with gender-affirming hormone therapy.
09:37:42 Q Okay. My question was: Wouldn't it be relevant for them

to know that almost everyone who starts on puberty blockers then goes on to cross-sex hormones?

A I don't believe that that would -- that category of information would be relevant. I don't know that that specific framing would be useful and informative to patients.

Q Okay. So you do not think that the --

THE COURT: Hold on a minute, Mr. Bowdre.

Ladies and gentlemen, let me say this: If you are sitting in the audience and you're head nodding or you're mouthing words and looking at the witness, please stop that, because that could give the appearance that you are trying to influence the witness.

So let me just put that out there. Please follow my guidelines on that.

I am not suggesting that you are being influenced by anyone out here, but it's possible that someone might want to influence you.

So go ahead, Mr. Bowdre.

MR. BOWDRE: Thank you, Your Honor.

Could you read the last question? I'm sorry.

(Whereupon, the Court Reporter read back the pending question.)

BY MR. BOWDRE:

Q Would you agree that there are substantial risks involved in someone starting puberty blockers and going on to cross-sex

hormones?
A There are risks involved in the treatment course for the treatment of gender dysphoria.
Q What are some of those risks?
09:39:39 A Can you be more specific? Of the entire course of treatment, or particular parts of the treatment?
Q The entire course of treatment.
A So I would disaggregate the risks of puberty blockers from the risks of gender-affirming hormone therapy and the risks of
09:40:06 testosterone therapy are different from the -- or are somewhat different than the risks of estrogen therapy.
Would you like me to review all of that.
Q Let me just ask you a couple of those.
Would you agree that some of the risks of puberty blockers
09:40:18 and cross-sex hormones would be loss of fertility?
A There is a risk of impaired fertility.
Q Okay. Would you agree that a risk would be loss of sexual function?
A Particularly the use of testosterone therapy has a risk of
09:40:42 changes in sexual function. I apologize. The use of estrogen therapy in -- has a risk of alterations in sexual function.
Q So if someone cannot predict with very much accuracy whether gender dysphoria will desist, then you cannot predict whether the interventions will help or harm that person; is
09:41:20 that true?

A No, that is not true.
Q Why is that not true?
A Because there is sufficient certainty that gender dysphoria will persist to have a discussion about the potential
09:41:37 benefits and risks of treatment.
Q Okay. So if it were the case that one could not tell with much accuracy whether the, you know, 11 or 12 year old at Tanner Stage 2 sitting in front of you, whether that person's gender dysphoria would desist, assuming that, then is it true
09:41:56 that you would not be able to know whether the intervention treatments of puberty blockers and the cross-sex hormones would be helpful or harmful to that person?
A So it would depend on how much uncertainty there was, and that would likely be information that was relevant to the
09:42:24 informed assent discussion and the parents' decision about whether to proceed with treatment.
Q What if you were 40 percent sure that the -- that the child would persist, then could you tell whether the interventions would be helpful or harmful?
09:42:52 A It -- so part of -- so do you mean 40 percent sure that your prediction of their likelihood of persisting was accurate, or do you mean that their likelihood of persisting was 40 percent?
Q I'm sorry. Let's assume that you are -- that you -- that
09:43:18 it is 40 percent accurate that the person sitting in front of

you is going to persist. The person has a 40 percent chance of persisting.

A Then in that hypothetical case, there would be less justification for proceeding with that course of treatment. But that is a hypothetical case and not the decision that patients and their families are currently facing.

Q Okay. Dr. Antommaria, what is a detransitioner?

A So I don't know that there's a technical -- currently a widely accepted technical definition of that term, because people -- individuals use that term in a variety of different ways to mean different things.

Q Okay. Would one definition, sort of a common definition be someone who identifies or has been diagnosed with gender dysphoria, has begun puberty blockers, cross-sex hormones, and then the dysphoria desists, or for whatever other reason they realign with their biological sex and they stop the medical interventions; is that a fair overall description?

A So that is a potential definition. The one qualification I would make is if it's defined in terms of an individual who discontinues medical therapy, there may be a wide variety of reasons for individuals to discontinue their medical therapy beyond change in their gender identity.

Q And have you reviewed the literature -- let me be more specific.

Have you reviewed recent surveys of people who identify as

detransitioners, specifically Lisa Littman's and Elie Vandenbussche's? Have you reviewed those two?

A No, I have not reviewed those two.

Q Are you -- do -- let me -- I will strike that.

09:45:34 Are you aware that at least, according to one of those studies, only 25 percent of people who detransition ever tell their gender-affirming care doctors that they have detransitioned?

A I heard you state that yesterday in court. But, no, as I

09:45:54 said, I'm not aware of those particular studies.

I would say that, for example, our clinic's informed consent documents emphasize if individuals discontinue their treatment, it's very important for them to provide that information to their health-care providers.

09:46:11 Q Okay. Does the fact that some people who are diagnosed with gender dysphoria, given puberty blockers and cross-sex hormones, dramatically change their bodies, sometimes permanently, and then divert to identifying with their biological sex give you any pause that we might not be so good

09:46:32 at identifying who are good candidates for these medical interventions and who might not be good candidates?

A Can I ask what you mean by give me pause?

Q Does it give you concern?

A So I think that in this field, all the available data and

09:46:46 information should be considered in making treatment decisions.

That would be potentially relevant information that should be incorporated in an ongoing basis in treatment decisions and revisions of clinical guidelines when they're revised.

Q But you have not reviewed at least these studies on detransitioners to consider whether those would impact your clinical standards; is that true?

A So those -- so I am aware of the discussion about detransition, including the stories of individual patients who have detransitioned. The body of literature is large.

And at this point in time, no, I have not reviewed those two specific studies. If it became relevant, I would make effort to review those studies.

Q Thank you.

You do not touch on this in your testimony, but in your declaration, you spent a couple of pages talking about access to top surgery for gender dysphoric minors; is that right?

A Yes. There's reference to top surgery in my declaration.

Q Okay. In such surgeries -- we're talking about mastectomies usually; is that right?

A That's one way to characterize the procedure.

Q Okay. And they are performed on minors in at least some states in the United States; isn't that true?

A That is true.

Q Okay. At what age do you think that a -- someone can consent to a double mastectomy as part of the gender-affirming

care?
A So I would be unable to answer that in terms of an age. The relevant factor is their decision-making capacity, which only has a correlation with age, but is not specific to age.
09:48:56 Q Okay. You said in your declaration that adolescents generally possess comparable medical decision-making capacity to adults; is that right?
A So part of the question is how you define adolescents. But, yes, older adolescents generally have comparable medical
09:49:22 decision-making capacity to adults.
Q So what age are we talking about?
A So the specific study that I cited in my declaration compared 14 year olds to older adults.
Q Okay.
09:49:35 A Or to adults.
Q And you would agree that Tanner Stage 2 puberty normally occurs before age 14?
A Correct.
Q Okay. So given that adults can consent to both top and
09:49:51 bottom sex-change surgeries, why can't a 14 year old not?
A Can you restate the question?
Q Yeah. Given that adults can consent to both top and bottom sex-change surgeries, why should a 14 year old not be able to consent to those procedures?
09:50:15 A Because in general, adolescents are not permitted to

consent to medical treatment, and we rely on their parents or legal guardians to consent.

Q But why is that? If they -- you just testified that 14 year olds have comparable medical decision-making abilities to

09:50:31 adults, is it simply a matter of law that they cannot consent, or is there some basis in the literature that would require the parental consent for 14 year olds?

A So at a minimum, the legal requirement -- so informed consent is in part a legal requirement. And although there are

09:50:53 exceptions to permit minor -- some minors to provide consent for certain forms of medical treatment, parental consent is required for a variety of different reasons, not a single reason.

Q I want to read to you a paragraph -- I will go -- I want

09:51:30 to read to you a paragraph on an amicus brief to the American Psychological Association, the American Psychiatric Association, and the National Association of Social Workers did in a case called Miller vs. Alabama.

All right. And so this is the amicus brief. And I am

09:51:50 going to flip to page 12.

In highlighted portion, paragraph 3, it says, Finally, juveniles differ from adults in their ability to foresee and take into account the consequences of their behavior. By definition, adolescents have less life experience on which to

09:52:15 draw, making it less likely that they will fully apprehend the

potential negative consequences of their actions. Moreover, adolescents are less able than adults to envision and plan for the future, a capacity still developing during adolescence. The study of maturity of judgment discussed above found that adolescents' future orientation is weaker than adults'.

I will skip the sentence about the specific subjects.

Then it says, Similarly, studies have shown that among 15 to 17 year olds, realism in thinking about the future increases with age, and that the skills required for future planning continue to develop until the early 20s. The ability to resist and control emotional impulses, to gauge risks and benefits in an adult manner, and to envision the future consequences of one's actions -- even in the case of environmental or peer pressures are critical components of social and emotional maturity necessary in order to make mature, fully considered decisions. Empirical research confirms that even older adolescents have not fully developed these abilities and hence lack an adult's capacity for mature judgment.

Do you disagree with that?

A So you would appreciate having seen this for the first time and not being able to review the evidence on which it's based, it's difficult for me to form a full opinion, but I am happy to provide my initial reaction.

And that would be that informed consent is generally considered to be a threshold at which people need to meet. The

language that I see here refers to optimal capacities which might far exceed that threshold. If you read the language that it continues to mature into the 20s, I don't take it that that's justifying that the age of consent should be moved to 20 or 22 instead of 18.

09:54:30

So I think it's consistent to say that individuals' medical decision-making capacity may continue to mature over time without saying that adolescents lack the sufficient capacity to assent to treatment.

09:54:49 Q Thank you.

THE COURT: How much longer do we have with our cross?

MR. BOWDRE: 20 minutes, maybe 30.

BY MR. BOWDRE:

Q Do you agree that more research is needed to study the efficacy and the cost and benefits of providing gender-affirming care to minors?

09:55:23

A I would say that more research is needed in all areas of health care, and that the State's legislation would prohibit such research.

09:55:44 Q And what are the questions that would need to be answered that the research needs to answer in this area that are left open?

A There are a range of questions that might benefit from further refinement, including issues about the timing of the initiation of therapy, dosing. There are a variety of

09:56:10

considerations that could be further refined and developed. But further refining those treatment protocols would be a refinement.

Q In your declaration, you noted that once the FDA has approved a medication for one indication, thereby agreeing that it is safe and effective for this intended use, prescribers are generally free to prescribe that for other indications; is that correct?

A That is correct.

Q Okay. But that does not mean that an off-label use would always be safe to prescribe to an individual simply because it is an FDA-approved medication for some purpose?

A Correct.

Q So, for instance, a nine-year-old boy with diabetes, the FDA has approved the use of insulin for that purpose, but providing insulin to a nine-year-old boy without diabetes would be very dangerous, wouldn't it?

A Yes.

Q So whether an off-label use is appropriate depends on the proven risks and benefits of that particular use that we're looking at?

A Yes. But the fact that a medication is used off label does not intrinsically mean that that evidence does not exist.

Q Okay. In your direct testimony, you said -- I think you said -- correct me if I'm wrong -- that randomized controlled

trials in this area would be unethical because no equipoise exists between treating someone simply with psychotherapy versus treating someone with psychotherapy and puberty blockers and cross-sex hormones; is that fair?

09:58:21 A Correct.

Q When did that equipoise come into existence?

A I don't know that I can provide you a particular date as to when that lack of equipoise came into existence.

Q For that equipoise or lack of equipoise to come into

09:58:48 existence, wouldn't we need studies that, you know -- doesn't there need to be at least one study that shows -- that looks at a group treated only with psychotherapy and one group treated with the medical interventions?

A Can you restate your question?

09:59:09 Q For the lack of equipoise to come into existence, for us to know that, you know, psychotherapy plus puberty blockers and cross-sex hormones are the way to go and that any other treatment would be unethical, don't we first need to have a study that treats someone with psychotherapy and has a

09:59:30 controlled group that way versus someone who is treated with all of those interventions?

A No. There are prospective observational trials that demonstrate the efficacy of puberty blockers and gender-affirming hormone therapy, and withhold those treatments

09:59:48 from an individual may be considered unethical.

Q Okay. So you were asked whether there were any high quality randomized controlled studies looking only at psychotherapy, which I will note is not the level of evidence that you are relying on.

10:00:29 But doesn't that concern you that we have no idea whether psychotherapy alone versus psychotherapy plus puberty blockers plus cross-sex hormones is doing the work in creating any benefits that we see?

A So there is substantial clinical experience that -- so I

10:00:53 will differentiate psychotherapy from psychological and psychiatric treatment given that psychotherapy is a distinct entity. But that there is substantial experience that providing mental health care to adolescents with gender dysphoria in and of itself is not sufficient to resolve

10:01:21 individuals' dysphoria and hence the reason for proceeding with medical interventions.

If a patient had gender dysphoria and was -- their gender dysphoria was adequately treated with mental health care, they would not proceed to medical therapy.

10:01:40 Q Do you contend that the Endocrine Society's practice guidelines that were released in 2017 provides a more robust overview of the literature than the UK's recent literature review of looking at puberty blockers and cross-sex hormones?

A Can you be specific as to which British report you're

10:02:16 referring to?

Q Yes. And if you want to look at them, they are Defendants' Exhibits 9 and 10. I think you do have the right binder.

A So I can't answer your question because it's asking me what in effect are apples and oranges. One is a systematic review of the literature, and one is a clinical practice guideline, which are different types of material.

Q Okay. I believe you testified that the -- I mean, the clinical practice guidelines you said does a comprehensive review of the literature and then suggests -- suggests, you know, practices. Is that fair?

A So a clinical practice guideline will be based on a systematic review of the literature and grades the quality of the evidence and the strengths and recommendations.

Q Okay. So for that part of the practice guideline analysis, the literature review part, would you say that the Endocrine Society's review was more extensive and is more accurate than the UK's more recent literature reviews that you're looking at in Defendants' Exhibits 9 and 10?

A So I can't answer your question in detail without more thoroughly reviewing the documents.

Based on my understanding of the Endocrine Society's methodology, I would expect them to be comparable, but I can't form a formed opinion based on the information that I currently have.

Q Okay. You have not reviewed closely the UK's recent literature reviews?
A So I've reviewed their conclusions. I haven't reviewed them in the degree of methodological detail that your question would require.
There are a large number of systematic reviews available in the literature. Some of which I know in detail, and others of which I know at less -- a lesser level of detail.
Q What are the prospective observational studies that you claim demonstrate the efficacy of puberty blockers and gender-affirming care?
A So the specific references are included in my report. But in general, they're the studies that are conducted by the Dutch group.
Q And in that study, both the 2011 study that looks only at puberty blockers and then the 2014 report that reported on people who then went on to cross-sex hormones and total surgical interventions, those studies -- so everyone in those studies got psychotherapy and psychiatric help the entire time; is that true?
A Correct.
Q Is it also true that people who had psychological comorbidities, depression, things like that, were excluded from the treatments from the medical interventions?
A So I would have to review their specific inclusion and

exclusion criteria to be able to answer your question.
Q Okay. Do you know if everyone in that study, whether their psychological functioning and improvements went to a new clinical range or not?
10:06:29 A So there were a variety of different outcome variables that were examined in the study, some of which were unchanged, but some -- but others of which showed statistically significant improvement. And so can you clarify what you mean by a new range?
10:06:52 Q I think I will move on, given our time.
If parents of a 14 year old can consent to cross-sex hormones, why cannot parents of -- and the 14 year old consent to a double mastectomy?
A As a legal matter -- can you clarify your question?
10:07:28 Q As a medical ethical matter.
A So I don't believe that there would be an indication to perform a mastectomy on a 14 year old.
Q Why not? Isn't mastectomy a gender-affirming care for a transgender man?
10:07:52 A So in general, the purpose of utilizing puberty blockers would be to prevent the development of those secondary sexual characteristics, and the use of cross-sex hormones would be to promote the development of secondary sexual characteristics that are consistent with an individual's gender identity. And
10:08:19 there would be a period of time in which it would be required

for the gender-affirming hormone therapy to take an effect.

The effects develop over a period of years. So it's hard for me to understand the clinical scenario that you're presenting.

10:08:37 Q Well, what if someone did not start on puberty blockers and comes to the clinic as a 14 year old already having developed?

A So in -- so it would be my general understanding that that individual -- would they be -- presumably may be pursuing

10:08:59 gender-affirming hormone therapy and would not -- so I'm having trouble understanding.

Are you suggesting that they're not starting gender-affirming hormone therapy and are simply moving to top surgery?

10:09:12 Q Either that, or -- I mean, my understanding is that if, you know, if a biological woman has already developed breasts, then providing testosterone, you know, doesn't make the breasts go away, right? You still need the double mastectomy. So why could not that person, a 14 year old, not -- her and her

10:09:31 parents not consent to that?

A So I'm having trouble with your construction, particularly related to the age.

But I would say that I think that parents and their adolescent children who are less than 18 potentially are

10:09:54 capable of consenting to top surgery. And it would depend,

then, on the specific clinical circumstance.

It's hard for me to answer your abstract formulation.

Q You provided an example in your declaration on -- I guess as an example of how the medical community often relies on low-quality evidence. And your example was that a doctor might prescribe, you know, 20 minutes of exercise and a low-calorie diet as a way to treat obesity. And I guess your point was there were no randomized controlled studies showing that 20 minutes of exercise and a good diet, you know, is always going to treat obesity.

But in that example, the risks of following that protocol are pretty low, aren't they?

A Yes.

Q Yeah. And would you agree that it might make sense to follow minimal low-quality evidence for low risks for high reward endeavors, such as exercising for 20 minutes, but that we might want higher quality of evidence or more robust mound of it before relying on it for something where the risks were quite high?

A That assumes that we cannot make decisions until some speculative future in which that evidence is available. Unfortunately, clinicians have to make decisions based on the evidence that is currently available to them.

Q Okay.

MR. BOWDRE: May have just a moment to confer with

counsel?

THE COURT: Yes.

MR. BOWDRE: Thank you, Dr. Antommaria.

THE WITNESS: Thank you.

10:12:02 MR. POWERS: No further questions.

THE COURT: All right. May the witness be excused? Sir, you can step down. Thank you.

THE WITNESS: Thank you, sir.

THE COURT: All right. In the interim -- do you have

10:12:15 something you want to say?

MR. DAVIS: No, Judge. I wanted to see how you wanted to proceed.

THE COURT: All right. Well, I thought -- I know we have several parties seeking leave to file briefs, including

10:12:27 several states and several professional organizations. I just wanted to see if the parties wanted to address that very quickly, whether there are any objections or not.

MR. LACOUR: I will go first, if that's all right, Your Honor.

10:12:41 THE COURT: That's fine.

MR. LACOUR: Would you like me to approach the podium?

THE COURT: Yes, please.

MR. LACOUR: Your Honor, we think that the brief from states should come in. It was filed in a timely manner, indeed

10:12:57 before Alabama's brief was even on file, which gave plaintiffs

time to assess those arguments before their brief was filed.

We do not -- for similar reasons, we do not think that the brief from the AAP should come in. They did not file it until we were actually here about the beginning of opening statements. So there was not time to look it over.

I will be candid. I have not even had time to read it myself. I think some people on the team have, but there has been a lot to do in a very short amount of time.

And so I think for that reason the Court would -- we would oppose that brief coming in at this moment.

THE COURT: All right. What about original plaintiffs?

MR. DOSS: Your Honor, we think both sets of amicus briefs are another data point that Your Honor could consider in looking at all of the evidence and thinking through all the arguments.

We have no opposition to the several states, their amicus brief, provided that the amicus brief of the professional organizations is also allowed to be filed in.

This has been a long week. I think, if I remember correctly, the states' brief was filed on Tuesday, the professional organizations' brief was filed on Wednesday. I don't think the timing makes any difference one way or the other.

But to the extent Your Honor is wishing to consider any

amicus brief, I would submit that both should be considered, Your Honor.

THE COURT: Well, I certainly will consider them all, you know, on final merits. The issue is whether we consider them now. Obviously, if I do consider them now, we are looking at this deadline.

Does anyone have any thoughts on that, just the practicality of me trying to take that in and consider it with all this evidence under a time crunch? I think that's worth addressing by both sides.

MR. DOSS: As I read the states' brief, Your Honor, it expresses general criticism as to what it -- what they refer to as consensus-based medicine. I don't really see the states' amicus brief is presenting really any legal argument, as best I could tell. The only legal citations were two citations to dissenting opinions from the U.S. Supreme Court. It seemed to me more of a policy statement rather than really much of evidence or legal argument.

As to the professional organizations, their amicus brief, I think we have gotten a sense of what those positions are over the past day and a half from Dr. Ladinsky and Dr. Hawkins. If consideration of any brief is going to delay consideration of the merits for present purposes, I would say -- I would submit defer consideration of those amicus briefs until later. We're just trying to get the preliminary relief at this point.

THE COURT: A very practical position.

How about the United States?

MR. CHEEK: We would concur with the plaintiffs on that.

10:16:16 THE COURT: Do you want another bite at the apple, Mr. LaCour?

MR. LACOUR: Your Honor, I would just note -- sorry -- point out the ECF notice. The Arkansas brief was on file by 5:23 p.m. or 5:30 p.m. on Monday. So just for the record, that 10:16:43 is when it came in.

And, of course, the brief from the medical organizations did not come in until the hearings were essentially already begun, so...

THE COURT: All right. All right. Last question that 10:17:00 I have, and it won't offend me if nobody wants to address this, but it's possible I have missed this in the briefing or the filings, but I certainly know who sponsored this bill. Where did this bill come from? Who wrote this bill? Is that something any party wants to address?

10:17:27 MR. LACOUR: Your Honor, it was a bill introduced into the Legislature, considered by the Legislature, enacted, so this is the work product of the Legislature.

If there are more detailed questions, we can certainly try to answer them.

10:17:58 THE COURT: I'm just throwing the door open for any

party to say what they want to.

MR. LACOUR: That's what we have to say, Your Honor.

THE COURT: All right.

MR. CHEEK: Your Honor, the United States does not know, but we are happy to get some people to work on it. And if we can find it out during the course of, you know, the next couple of hours, would it be permissible for us to revisit that question or submit a one-page notice to the Court if we can pin that down?

10:18:31 THE COURT: We have got more time. We can take it up again if somebody wants to.

Mr. Doss, is this something that you want to address? Again, nobody has to. I am just asking the question.

MR. DOSS: I don't know, Your Honor.

10:18:45 THE COURT: All right. Who is our next witness?

MR. DAVIS: Your Honor, we are going to call Dr. James Cantor. I don't know if you want us to begin now. We're prepared.

THE COURT: I think this is a great time to have a 10:18:58 short break.

So why don't we come back in 12 minutes?

(Recess.)

THE COURT: Thank you. Please be seated.

All right. Any further witnesses from either of the 10:39:14 plaintiffs?

MS. EAGAN: No, Your Honor.

THE COURT: All right. State's case.

MR. DAVIS: Your Honor, the State calls Dr. James Cantor when you are ready.

10:39:28 THE COURT: I'm ready.

JAMES CANTOR, MD,

having been first duly sworn by the courtroom deputy clerk, was examined and testified as follows:

DIRECT EXAMINATION

10:39:46 BY MR. DAVIS:

Q Good morning, Dr. Cantor.

A Good morning.

Q Would you state your full name?

A James Michael Cantor.

10:40:02 Q What is your profession, Dr. Cantor?

A I am a clinical psychologist and neuroscientist.

Q What degrees do you have? Academic degrees.

A Bachelor's degree in computer science and mathematics, a master's degree in applied psychology, and a Ph.D in clinical

10:40:17 psychology.

Q Where do you work?

A I am currently in private practice in Toronto, Canada.

Q And what is the nature -- are there any particular focuses of the counseling you provide or the research that you have

10:40:32 performed?

A Human sexuality and atypical sexualities.
Q Would that include studies of gender identity?
A Yes, it is. Yes, it does.
Q Are you knowledgeable about the research surrounding gender dysphoria?
A Yes, I am.
Q Have you analyzed research concerning the benefits and harms of different ways of treating gender dysphoria?
A Yes, I have.
Q Do you have skills and expertise assessing the strengths and weaknesses of scientific studies?
A Yes, I do.
Q And do these skills and expertise include judging what those studies do and do not prove as a matter of science?
A Yes.
Q Have you treated people who presented with gender dysphoria?
A Yes.

MR. DAVIS: Your Honor, we proffer Dr. Cantor as an expert on psychology, human sexuality, research methodology, and the state of the research literature on gender dysphoria and its treatment.

THE COURT: Any objection?

MS. EAGAN: No, Your Honor.

THE COURT: All right. He will be accepted for that

purpose.
BY MR. DAVIS:
Q Dr. Cantor, there is a notebook in front of you with a blue cover. Would you please turn to the second tab?
10:41:51 A I'm sorry. It just occurs to me I didn't bring my reading glasses. They're in my brief case.
MR. DAVIS: Your Honor, can the witness get his glasses?
THE COURT: Absolutely.
10:42:43 THE WITNESS: Part 2, you said?
BY MR. DAVIS:
Q Yes. Tab 2, which is Defendants' Exhibit 2.
Can you identify that document, Dr. Cantor?
A Yes. That is my report, which I submitted for these
10:42:54 proceedings.
Q Thank you.
I think actually, since we just heard Dr. Antommaria, I would like to begin with addressing some things that we heard this morning.
10:43:02 Did you have the opportunity hear this morning's testimony by Dr. Antommaria?
A Yes, I did.
Q Did you understand Dr. Antommaria to testify that randomly controlled studies are not available in this area of medicine?
10:43:16 A Yes.

Q Did he then say, if you understand -- as you understand, that because the randomly controlled trials are not available, we can rely on observational trials?

A That is roughly what I understood him to say, yes.

10:43:33 Q Do you have any response to that?

A Yes. That's not -- it is true that none of the existing studies are randomized, but it is entirely untrue that we therefore can rely -- can make decisions based on the least reliable kinds of studies.

10:43:48 There is a wide, wide range of studies in between, and there's a wide, wide, range of different scientific methodologies that we can employ in order to minimize the laws that we get from completely randomized studies.

It's also actually possible if we wanted to conduct such 10:44:09 studies such as by allowing people to undergo different parts of a treatment at different times, so we can compare the differences between them when one group has started on that type of treatment and the other hadn't yet.

Q Okay. So the randomized trials would be considered like 10:44:29 the gold standard, the top-tier level of scientific research?

A Randomization is one factor in determining how high quality a study is. It is not a -- it's neither an all or nothing.

Q I understand. But did I understand you to say that if you 10:44:47 assume that's not available, that's no reason to drop down to

the lowest quality of evidence?
A That is correct.
Q I understood Dr. Antommaria to testify that the level of evidence supporting the WPATH and Endocrine Society guidelines
10:45:05 is comparable to the level of evidence supporting other treatments in pediatrics. Can you respond to that?
A I am not aware, of course, of all the other treatments in pediatrics. However, there are no studies yielding positive effects of either the Endocrine Society standards or the WPATH
10:45:24 standards.

The studies which have shown effects have used the Dutch model, which uses a higher set of standards than either the Endocrine Society or the WPATH group.
Q Speaking of the Dutch study, I also understood
10:45:42 Dr. Antommaria to say there is no high quality evidence supporting the use of psychotherapy alone for gender dysphoria. Do you agree with that?
A No, I do not.
Q What would you say in response? What's the countervailing
10:45:56 evidence?
A There exists roughly 15'ish studies following up these kids at all. All of the studies, which without exception that used medical interventions also used psychological -- psychotherapy at the same time. So all of the studies which
10:46:17 could seem to show a benefit for medical interventions are

unable to distinguish that it was the medical intervention causing the benefit, versus the psychotherapy causing the benefit.

Of those studies, two were designed in a way that it was possible to peel apart the effects of psychotherapy versus medicine -- the Costa study and the Achille study. The full references are in my report.

In the Costa study, there was a -- there were two phases. There was a phase that people went through when they received psychotherapy alone. And then in the subsequent phase, they received both psychotherapy and medical interventions.

There were no significant differences between the group. Both groups improved, and there were no significant differences between the group that received psychotherapy alone and the group that received psychotherapy plus medical interventions.

The other study, the Achille study, used a statistical method to control for the effects of psychotherapy. That group also improved after medical intervention, but when the effects of psychotherapy were statistically controlled, there was no additional benefit of the medical interventions after that.

Q I want to break some of that down. You mentioned studies where all the participants were receiving both psychotherapy and medical-affirming care at the same time, right?

A Correct.

Q Is that the Dutch -- oh, is the Dutch protocol, the Dutch

study an example of such a study?
A Both Dutch studies, the 2011 and the 2014, yes.
Q If, at the end of that trial, you look and see the people that were receiving both psychotherapy and medical-affirming
10:48:06 care at the same time, improved in mental health at the end of the trial, can you as a scientist tell whether the improvement is the result of the pharmaceuticals or the psychotherapy?
A Not in the design of those studies, no. That's what in science is called a confound.
10:48:27 Q Confound?
A Correct.
Q What does that mean, confound?
A It describes exactly that situation. When two things are done at once, when you see the result, you can't peel apart
10:48:37 which -- which of those two interventions was responsible or the interaction between those two interventions was responsible.
Q Okay. But the Costa and Achille study, on the other hand, they do provide scientific evidence that psychotherapy alone is
10:48:53 helpful, did --
A That's correct.
Q Okay.
A That psychotherapy is helpful and not the medical interventions.
10:49:01 Q I also understood Dr. Antommaria to say that he had not

read studies about detransitioning. But if it ever became relevant, he would make an effort to review such studies.

You are familiar with the body of the literature concerning gender dysphoria, correct?

10:49:21 A Yes.

Q In your opinion, are the studies of detransitioning relevant to someone trying to assess the benefits and harms of these treatments?

A Yes, of course. It's very difficult -- detransition would

10:49:35 be the situation that one is trying to avoid. The best way to avoid a situation is to understand that situation.

Q Dr. Antommaria said that there are prospective observational trials that demonstrate the efficacy of puberty blockers in gender-affirming care, and then later said the

10:49:59 trials he is referring to were primarily the Dutch group studies.

Are those the studies you just mentioned, the 2011, 2014 studies?

A Those are the Dutch studies that usually we use. I can't

10:50:12 know if he is referring to some other study that I didn't make a specific reference to.

Q That's fair.

In this area of medicine, when someone's talking about the Dutch studies, the Dutch group studies, is it your

10:50:25 understanding they're generally referring to these 2011 and

2014 studies from the Dutch project?
A Almost always, yes.
Q Okay. And those are the studies you just mentioned that have the confound problem, right?
10:50:36 A Correct.
Q You can't unpack whether it's the psychotherapy or -- not from that study, you can't unpack whether it is the psychotherapy or the pharmaceuticals that are making the difference?
10:50:47 A That's correct.
Q Okay. More generally, I'd like to read for you a statement from the plaintiffs' brief in support of their preliminary injunction motion.
For the record, it's Doc 8 at page 18.
10:51:07 Dr. Cantor, the plaintiffs wrote in that brief, For more than four decades, medical organizations have studied and created an evidence-based standard for the medical treatment of transgender patients. This standard confirms that transition, including puberty blockers and hormone therapy where 10:51:26 appropriate, is the only safe and effective treatment for gender dysphoria?
Dr. Cantor, does the research literature support that statement?
A No, it does not.
10:51:37 Q Do you understand the plaintiffs primarily to be pointing

to the guidelines of medical organizations such at WPATH and the Endocrine Society and the American Academy of Pediatrics to support their positions that wish to continue giving these treatments to children?

10:51:52 A Yes. They cited those repeatedly.

Q Okay. What observations have you had about the WPATH guidelines and whether they have support in evidence?

A The WPATH guidelines and the Endocrine Society guidelines have been tested among the set of -- as I say, roughly 15

10:52:13 outcome studies, some of them have used the WPATH guidelines or Endocrine Society guidelines instead of the Dutch protocol. And those studies demonstrated that there was no improvement at all.

I shouldn't say none at all. One of them used several

10:52:36 kinds of measures of improvement, and I think it was all but one demonstrated no differences at all. And one small one gave an indication that suggested the possibility.

Q Have these organizations acknowledged anything about desistance rates -- these organizations, I'm referring

10:52:57 specifically to WPATH and the Endocrine Society?

A I can't say that they've never addressed it, but to the extent if it was ever addressed, they are grossly, grossly minimized.

Q Can I refer you to paragraph 12 of your report on page 4?

10:53:33 A I got it.

Q You say in that paragraph that the plaintiffs' documentation -- and I assume by documentation, you mean their -- the pleadings in this case and the briefs that you had seen?

10:53:50 A That's correct.

Q You said the plaintiffs' documentation misrepresents the contents of the associations' policies themselves.

Which associations were you speaking of there?

A They mentioned several other societies which made short

10:54:04 statements in general support of sexual diversity, but without actually issuing specific standards about how to treat people in that community with what or at what ages.

Q And what inconsistencies did you see between what those organizations have said and the arguments you saw in

10:54:23 plaintiffs' briefing?

A The plaintiffs referred to the societies as if they were providing very specific support for very specific policies rather than general recommendations to provide, for example, respect and values for diversity, but no specific guidelines.

10:54:48 Q Okay. Well, looking at paragraph 12, is one of your points here looking at the bullet points that even WPATH and Endocrine Society acknowledge as you write, that desistance of gender dysphoria occurs in the majority of prepubescent children?

10:55:04 A That is correct.

Q And then turning the page, were there other issues you saw that the statements -- that these organizations believed and plaintiffs' briefing was inconsistent with what the organizations had stated?

10:55:16 A That the issue of mental health and that mental illnesses and similar concerns need to be resolved before considering transition rather than depending on transition to be the resolution of, for example, depression and anxiety.

Q And have any of these organizations acknowledged that

10:55:42 puberty-blocking medication is an experimental not a routine treatment?

A Yes, they have used that phrase.

Q Which organization?

A Again, I would have to look up to see exactly who used

10:55:52 which word. I believe it was WPATH, but I again have to go back and check to make sure that it was they.

Q And let's turn to the American Academy of Pediatrics. And I will refer you to your appendix.

And, Dr. Cantor, if you look at the top of the page, you

10:56:12 will see a line of blue figures. And it's page X out of 106. The appendix I am referring to is page 100 out of 106.

A Got it.

Q What does the American Academy of Pediatrics or AAP, what do they recommend in this area of care?

10:56:42 A They recommend what I can best describe as affirmation on

demand.
Q Okay. Did you review their recommendation when it came out?
A Specifically I reviewed the sources on which they based their recommendations.
Q Okay. Did you write about that?
A Yes, I did.
Q And does that appear as an appendix to your report beginning at page 100 of that pdf?
A That is correct. I summarized all of my comments. I submitted them to a journal where they underwent peer review. And it's an official published peer-reviewed paper.
Q This is not a letter to the editor?
A That is correct. This is part of a scientific -- now part of the scientific literature.
Q What did you comment upon?
A I really just checked what the authors of the AAP policy, Dr. Rafferty, what their claims were, what they said was in their references versus what was actually in their references.
And not only did their sources not contain what they were alleged to have obtained, they often contained the very opposite of what the AAP policy said they contained.
Q Did you have an agenda to disprove -- to prove or disprove anybody when you undertook that review of the evidence?
A I wouldn't say an agenda other than to set the record --

pardon the pun -- straight.

This was a situation where these sources I had known for many years. I had read them when they had first came out.

And when AAP came out with its policy, I was stunned by its content. And as I read what they were basing it on, my recollection was immediately this is not what those sources said.

So immediately I just started double checking myself. Did I misread something? Am I misremembering something?

10:58:36 And as I just checked in my own files with copies of these papers -- most of these papers already in it, my memory was correct. They said as -- the kinds of things I recalled them to be saying.

Because we were now talking a major medical association 10:58:51 rather than an individual other scientist. This was different from just one scientist like me disagreeing with another scientist. This was now -- now had the potential to cause a great deal of damage to a great number of people.

So because I had the ability to do it, I simply summarized 10:59:11 the contents of the original paper and contrasted point by point the claims being made by AAP and simply quoting verbatim what was in the original studies.

That entire thing was published, and the AAP has never responded. They were approached by the media, and they just 10:59:33 would refuse to talk even to the media. They have yet to have

any response.
Q So to date, the AAP has not responded to the criticisms that you raised?
A That is correct.
10:59:42 Q I will refer you now to page 6 of your report. Going by the numbers at the bottom of the pages.
A Yep.
Q As you noted in your review of the plaintiffs' expert report -- well, first off, did you review the expert reports
11:00:08 submitted by the plaintiffs by Dr. Hawkins and Dr. Ladinsky?
A Yes, I did.
Q And did you note that they studied a 2016 Olsen study claiming that it proves that transition reduces the risk of mental illness? That that was their claim?
11:00:23 A Correct.
Q Does the Olsen study show that?
A Just referring to my own report. Ultimately, no, it did not. There was several statistical errors in the Olsen study. The data were obtained then by the -- they -- upon request, and
11:00:45 Olsen provided their data to another author who reanalyzed -- I should say, correctly analyzed the Olsen data, who demonstrated that Olsen's data did not contain evidence of improvement. In fact, it contained evidence of deterioration.
Q So in your opinion, does the 2016 Olsen study support
11:01:04 plaintiffs' position that children need these affirming --

these medicalized affirming treatments in order to improve their mental health?

A No, it does not. Making such a claim is a half truth. It would ignore the subsequent entries in the scientific literature.

Q And what about the de Vries study that plaintiffs cited in which you address on page 9 of your report? And does it show that medical transition of minors improves mental health?

A No. It contains part of the confound. The de Vries study as part of a Dutch group also included psychotherapy during transition. So it is not possible to differentiate which type of therapy, medical or psychotherapy, is responsible for the benefits reported in that study.

Q I see. So participants in that study did have improved mental health, correct?

A Yes.

Q But it's just not possible scientifically to tell what caused the improvement?

A Correct.

Q And what about the Greene and Turbin studies plaintiffs' experts cited which you discuss in paragraph 24 of your report?

A Yep.

Q Do those studies show that medical transition improves mental health?

A No, they do not. These are retrospective correlational

studies. They are not able of describing any causal effect coming to any causal conclusion.

Q Okay. Now, you mentioned there that -- you say this very pattern is what one would predict from clinical gatekeeping. What do you mean by clinical gatekeeping?

A One of -- across the various clinical standards are to prevent somebody with mental illness from undergoing transition. So such people are being held back. They're being filtered out of groups who do undergo transition.

So when a clinic then compares the people who underwent transition to the people in their files who did not undergo transition, they are necessarily comparing a group of people from whom the mental illness was removed and comparing them to a group of people from whom the mental illnesses were not removed.

So when you see better mental health amongst the people who had transitioned, the improvement is not because of the transition, the improvement is because you have removed the people with the worst mental health from the group in the first place.

Q Okay. So is it correct, then, that one thing you might see in these studies is by picking out the people with the best mental health, and giving them the treatment, then comparing them to the people with lower mental health, then, of course, the people who went through the study would do better?

A That is correct.
Q Did you review any of the other studies that plaintiffs have submitted into evidence such as the Allen study, the Turban articles, the Biggs (phonetic) study, the Lopez de Lara
11:04:24 study, Tordoff?
A Yes, I have.
Q Do you have any comments on those studies and whether they support plaintiffs' position?
A They suffered from the same methodological problems as the
11:04:35 other studies.
Q Did any of those studies support the position that medical transition improves mental health?
A No, they did not.
Q In minors with gender dysphoria?
11:04:47 A Correct. No, they do not.
Q Oh. What has been called the Yale study by Brouware, B-R-O-U-W-A-R-E, was the first named author. Did you review that one?
A Yes, I did, but it wasn't a study.
11:05:07 Q What was --
A Apparently, that was a report submitted by those authors for another -- or for a combined set of court cases.
Q Okay. But you would not refer to that document as a scientific study?
11:05:21 A From the Yale group with -- again, the name I don't -- I

hesitate to try to pronounce, but, no, it was not a study at all. It was those authors' report reviewing the literature and providing their opinions.

Q Okay. As a matter of fact, Dr. Ladinsky was asked about that study yesterday. And for the record, that testimony appears on page 116 of the rough transcript.

The question was: In this document, do the authors also cite a number of peer-reviewed studies that contradict some of the supports or the principles that the State articulated as the reasons for SB 184? And Dr. Ladinsky responded, They do, a considerable compendium of them.

Is she right? Did those authors show that there are studies that contradict the State's position in this case?

A There was such a statement. There was no meaningful way to try to put together what claim went together with what source. Rather than -- what's done more typically either in science or in pause, best as I understand, is here the claim and here is the source justifying it. Here is next claim, here the source justifying it.

Instead, that document made a long series of unsourced claims and then provided a long series -- a series of very large footnotes with 20 and 30 references. And there was just no way to see what fact was alleged to have come from what source.

Q So we've talked about whether the literature the

plaintiffs' -- the studies that plaintiffs cite to support their position. Let's talk about whether the literature supports the State's position. But a little background first.

Could you describe from your review of the literature just what's the difference between adult onset gender dysphoria, child onset, and adolescent onset? And I know this is a broad question, but I just mean like age groups.

A Usually we would be referring to these as a prepubescent onset. Then the literature is very, very long, but reported on adult onset. And by adult, on average, these were people in their 20s and in their 30s and 40s. It was very, very distinct. It was not, you know, a bell-shaped curve with some midpoint around 18 or 19 years old.

It's only within the past --

THE COURT: Hold on one second.

Go ahead. Sorry.

THE WITNESS: It's only within the past ten years or so that a different profile has begun to emerge and was noticed by clinicians. And that now is being called either adolescent onset or rapid onset.

Now, all three of these groups have in common that they're complaining about the same thing. Doc, I feel like I am in the wrong body. Doc, I am the brain of one, but in the body of the other.

So the way that they describe it is similar. But every

objective way we have of measuring these people shows that these are independent phenomena. They are not related except in the way that people describe the situation, describe what they're experiencing.

11:08:50 The best analogy I have would be if somebody came to a doctor saying I have a headache. Okay. I got it. Got that's a symptom. I have some more questions. But we cannot from that say that a migraine headache is the same thing as a tension headache is the same thing as having just suffered a 11:09:08 head injury.

The causes are different. How we respond to them is different. And the other characteristics about each of these are different. They only resemble each other in the most superficial ways.

11:09:19 Childhood onset or prepubescent onset gender dysphoria appears to be entirely unrelated to adult onset gender dysphoria. And the two of those appear to be entirely unrelated to the rapid onset or adolescent onset gender dysphoria.

11:09:40 BY MR. DAVIS:

Q Well, let's break that down. Adult onset, typically people who present with what you're referring to adult onset gender dysphoria, what age are they when they come into the doctors' office and say, something's wrong?

11:09:50 A On average, in their 30s and 40s.

Q Okay. Has there been research considering whether those -- that universe, the adult onset universe does well after transitioning?

A Those who are mentally healthy by and large do, do well after transition.

Q Can you apply those studies to consider whether someone with child onset gender dysphoria is going to do well after transitioning?

A No. Because these are independent phenomena. The information from one does not -- from one group does not generalize to the other.

Q Comparing the adult and the child onset, what is the difference that makes the studies of one, you know, it's not apples to apples?

A Correct.

Q Okay. What is the difference between those patients?

A The -- they -- as I say, differed in just about every objective measure we've been able to apply to them.

There are, of course, the ages themselves. Something -- the sex ratios in them are different. The adults are almost 100 percent biological male. There's more of a mix amongst the childhood onset.

The adults are almost always attracted to females. That is to say, relative to being biological male, they are almost always heterosexual.

The childhood onset almost always are attracted to the same biological sex. They are almost always homosexual.

Q Talking about the child onset, is that a new phenomenon, child onset gender dysphoria?

11:11:31 A I wouldn't say new. It's been systematically studied for 20 to 30 years'ish.

Q From the literature that you reviewed, do most of these kids, if not socially transitioned and given hormones, will they want to transition after reaching puberty?

11:11:52 A Generally not.

Q And page 36 -- excuse me -- paragraph 36 of your report, Dr. Cantor, what statistics do you provide about the rates of desistance among those presenting with childhood onset gender dysphoria?

11:12:15 A The exact numbers are between 61 to 88 percent of them desist. In the appendix in my report, I list all of the studies that have ever been conducted with that group, all the outcome studies that have been conducted with that group.

Q We probably both need to slow down just a little bit

11:12:37 for...

A I'm from New York. It just happens.

Q We'll do our best.

Dr. Hawkins was asked about your paragraph 36 yesterday. And I will represent that on page 30 of the rough transcript,

11:12:54 she said that when the study such as the ones you're citing

offers this elevated rate of desisters, quote, what we tend to find is that the initial cohort that was given the diagnosis of gender dysphoria is actually false.

My question, Dr. Cantor, is: Does the research literature support Dr. Hawkins's statement?

A No. As I say, I listed every single such study.

Q Do we have any tools today that reliably tell us which kids will desist and which kids will persist?

A No, we do not. There have been some attempts to develop such a test, but they have never been able to find a good characteristic, a feature, a pattern, a test result in which the majority continued to want to persist.

The best that they have ever been able to do was find a tool which distinguished unlikely to want to persist versus even less likely to want to persist.

Q There's been testimony about something called the DSM-5. Do you know what that is?

A Yes, I do.

Q What is it?

A The full name is the Diagnostic and Statistical Manual of Mental Illnesses, published by the American Psychiatric Association.

Q If someone were to claim that now that we have the DSM-5 we may be able to do a lot better with identifying who's the desister and who is the persister, is there any research on

that?
A No. Nobody's ever tried to differentiating any of the DSMs from DSM-I through its various versions to the current one.
11:14:38 Q So there have been at least five?
A There was a I, a II, a III, III-R, IV, IV then had a text revision. They switched some of the commentary around the diagnoses, but they didn't change any of the diagnostic criteria themselves. There was then the 5. And there is as of
11:15:01 last month a 5 again with a text revision, but no changes to any of the actual diagnostic criteria.
THE COURT: Mr. Davis, how much longer do you think we will be?
MR. DAVIS: Your Honor, direct will take us up to
11:15:14 about noon, I would predict. There's just a lot to cover with Dr. Cantor.
THE COURT: I am not rushing you. I am just trying to get a road map of that.
So how long do we think cross might be?
11:15:25 MS. EAGAN: It's difficult to predict because I am not sure what else he may say, but maybe an hour, hour or less, I would think.
THE COURT: All right. I am leaning toward an earlier lunch than we did yesterday. So maybe -- if it's okay with
11:15:45 you, let's just go ahead and find a stopping point at your

leisure, and we will just pick back up after lunch.

MR. DAVIS: Thank you, Your Honor. This is as good as any.

THE COURT: Is it?

11:16:00 MR. DAVIS: Yes. We have just talked about DSM-5. Going to watchful waiting next. This is as good a place as any.

THE COURT: Okay. Good. Good. With that said, then are we still on target with your last witness?

11:16:17 MR. DAVIS: Yes, Your Honor. Ms. Wright is here. I don't know if she is in the courtroom yet or not, but she is in Montgomery, and she will be ready to go when we finish with Dr. Cantor.

THE COURT: We think the length of that witness would

11:16:30 be what?

MR. DAVIS: Oh, I would say direct would be well under 30 minutes, but I don't know about cross.

THE COURT: Okay. All right. Okay. Well, I think we're on target.

11:16:38 Let's take a good long lunch today. Let's see here. Let's come back at 12:45.

MR. DAVIS: Thank you, Judge.

THE COURT: Thank you.

MR. DOSS: Judge?

11:16:54 THE COURT: Yes?

MR. DOSS: Closing, how long would you like?

THE COURT: You know, I mean, this is important. I'm not going to, you know, jack everybody up on this, but to the extent you can hold it to around 25, I think would probably be a good thing.

11:17:07

And in your openings, I think you really road mapped it very well, both sides did.

So, you know, again, I know the arguments. I'm really interested in, you know, some analysis with case law. And I am going to be directly asking about a few cases. I'm very interested to know parallels between the Arkansas decision and that law. And then I may give you some hypotheticals that you won't like.

11:17:22

See you after lunch.

(Recess.)

11:17:40

THE COURT: All yours, Mr. Davis.

MR. DAVIS: Thank you, Judge.

BY MR. DAVIS:

Q Welcome back, Dr. Cantor.

We spoke earlier about the Dutch protocol. Did the participants in those Dutch studies have psychotherapy before beginning treatment? Before that study?

12:51:00

A They were receiving treatment as part of their participation in the study. I don't think they reported whether anybody happened to have attempted psychotherapy before

12:51:21

approaching the clinic at all.
Q Okay. Forgive me if I'm mistaking which study is which. I was reading about a study that described the psychotherapy that was available to the participants as extensive. And that
12:51:40 that extensive psychotherapy was at least two years. Which study am I thinking of?
A That wouldn't have been a particular study so much as what they use in their process in general.
And then the Dutch group was reporting the results, you
12:51:56 know, of -- periodically over the course of the study.
Q I see.
A But by the time the first set of results, their earlier study, the 2011 study, the participants in it will have already been through a substantial amount of therapy.
12:52:13 Q Okay.
A They also emphasize that in assessing the children that it's a very extensive assessment, and the assessment itself was also ongoing over the course of the study.
So even before deciding who might be eligible for
12:52:30 hormones, they have now many, many months to years' experience with the particular case even with a particular child even before making a decision. That's very, very different from just having an appointment, taking a test, and then having a diagnostic decision an hour later.
12:52:46 Q That is exactly what I was meaning to ask you about. I

was using sloppy language.

So this extensive assessment that happened before some of these children began treatments, they were assessed, you said, over a course of a couple of years?

12:52:59 A Correct.

Q Okay. So does literature support having such an extensive assessment period before subjecting someone to these treatments?

A I don't know if I would say support it, but all of the

12:53:16 conclusions that come from the literature depend on it.

Q Thank you.

Is there a way of treating gender dysphoria that some practitioners refer to as a watchful waiting approach?

A Yes. Watchful waiting usually refers specifically to

12:53:40 withholding any decision about medical interventions until they have a better idea or feel more confident for a particular case about whether that kid is going to be a persister or desister. It is given the knowledge that that's available that the majority of these kids do desist. Nobody wants to make a

12:54:00 decision upon first appointment.

And so -- so they tend to provide psychotherapy, whatever kind of care, whatever is appropriate to the individual kid until enough time has gone by to give -- to suggest is this a kid whose feelings like they're feelings are slowing down and

12:54:19 they just need more time, are they building up, or are they

staying steady?

So the watchful waiting period would be postponing any decision about medical interventions until the clinicians had some confidence.

12:54:31 Q While you are watching and while you are waiting, are you just leaving him alone, or her?

A No. That would be the time during which one would be supplying a therapy for whatever else is going on in the kid's life.

12:54:42 Q Okay.

A Usually they're associated with -- there's a great deal of what we call comorbidity. They're also suffering from other problems at the same time, either depressions, anxieties, early evidence of personality disorders, for example. And it's never

12:55:00 clear whether their gender dysphoria is a result of those other psychological problems.

So by helping them develop the tools to deal with those other problems, if they remain dysphoric afterwards, we know that the dysphoria wasn't the result of those other problems.

12:55:17 So rather than just leaving them alone, they're still receiving support, and the family is still receiving support over that period.

Q So I believe you pointed out in your report that clinical guidelines suggest that mental health issues such as the

12:55:33 comorbidities you mentioned should be resolved before

transition; is that correct?
A Yes.
Q Okay. Why?
A Because it's never clear what's causing what. We cannot from a correlation conclude anything about a causation. It's very possible, and it's been frequently observed that a lot of these kids are using gender issues as an explanation for the unhappiness that they're experiencing elsewhere in their life.
So rather than developing the skills to -- for example -- better social skills. If a person feels awkward and they're withdrawing from kids their own age, we are not sure if they want to transition because they're blaming gender dysphoria for why they feel unpopular or uncomfortable, and we're not -- versus we can't tell if anxiety or depression is a result of how they're being treated by the rest of society.
So it's only by helping them deal with and by giving them the skills to overcome those other disorders that we can see if the gender dysphoria itself resolves just as a result of that.
Q So if a person is suffering from depression, or is struggling with their own sexual identity, or some type of abuse, or any of these other comorbidities, explain how this psychotherapy process would work, how a psychotherapist such as yourself would try to dig down into the issue and see if that is something that's generating these feelings that are being mistaken as gender dysphoria, or whether the gender dysphoria

is its own thing.

A Just to be specific, I'm specifically an adult clinical psychologist. I see clients ages 16 and up. So it wouldn't be me personally.

12:57:23 What the literature shows about these kids is that they can be very, very diverse. It certainly is feasible that they are experiencing, for example, depression or anxiety as a result of social transphobia, but that doesn't explain the other things that we're observing.

12:57:41 For example, a transphobia doesn't cause autism, which is another very, very common disorder in that group. Transphobia wouldn't cause the development of borderline personality disorder, which we're seeing in very, very, large proportions among the teenagers.

12:57:58 So although certain symptoms like anxiety and depression can feasibly be the result of social reactions to being trans, but that does not explain the overall phenomenon. What does better explain the overall phenomenon is that there is some thing troubling this kid, and it is resulting in both the

12:58:20 psychological symptoms, depression, anxiety in someone, and also producing the gender dysphoria, that discomfort with being their natural sex.

Q I would expect this could vary wildly from patient to patient, but if you -- and I recognize and thank you for

12:58:37 clarifying that you deal with a more adult-age group.

But if you're helping someone, an adolescent, work through some of these issues, how often do you think a psychotherapist would want to see the patient and over what period of time?

A It does vary widely. And the kind of disorders that they're reporting do tend to be the kinds that require very long-term interventions.

As I say, autism, and related Asperger's syndrome, and also very, very high rates of borderline personality disorders, which, again, is a very, very long-term disorder to help somebody deal with.

Q Fair to say this would not be two or three sessions?

A Correct. This would be over the course of months or years.

Q Does the research literature show that there are risks associated with medical transitioning?

A Yes, quite substantial, including both loss of -- primarily loss of function, and depending on the person's point of view, whatever the cosmetic effects are.

Q What are the risks of the watchful waiting approach in providing psychotherapy in helping the child deal with any underlying emotional issues?

A There don't appear to be any, at least any concrete.

Q I will refer you to paragraph 68 of your report, Dr. Cantor.

Tell me what the advantages there are to a patient, what

opportunities it opens up to him or her if any emotional issues are dealt with before the decision to transition.

A If a person fails to deal with whatever emotional issues before it transition, and then transitions and discovers that they continue with whatever psychological issues are pervading them, they have gone through the entire transition process entirely unnecessarily. They haven't been helped. They have now lost whatever -- they have now been sterilized, lost whatever sexual -- or other functions, but it hasn't actually resulted in any improvement in their psychological function.

If you go the other way around and you help the person deal with psychologically whatever it is that's going on, they still retain the option for transition after that. And it's that situation that the professional societies have repeatedly -- that the standards of care have repeatedly pointed out.

Q So watchful waiting approach does not eliminate a person's ability to transition to the opposite sex later in life if they so choose?

A Correct.

Q Does the research literature show there's any relationship between children who present with gender dysphoria and those who later in life turn out to identify as gay?

A Yes. The large majority of the ones who believe that they were born the wrong sex turn out to be gay or lesbian.

To a prepubescent child who doesn't yet have a sex drive, they have no way to interpret why they feel different from other boys or other girls their age. It's only with the onset of sex drive that they start -- and start developing crushes and physical attractions that they now have the information they need to realize why they're different. But to an eight year old or to prepubescent children, the only explanation they have for why they're not like other boys or not like other girls is they must be the wrong sex. They're misinterpreting their feelings.

THE COURT: Let's take a quick time out.

So, you know, I guess I'm wondering how both sides are wanting me to use all this expert testimony. I mean, the Eleventh Circuit has said more than one time that, you know, medical psychiatric professionals are in a far better position to make decisions about medical and psychiatric issues than judges are.

So I guess I want to know from each side real quickly, how do y'all envision that I use these experts? I mean, are you asking me to say, well, this guy's science is junk and this guy's science is perfect; or something in between? What am I -- tell me how you envision me using this.

MR. LACOUR: May I?

THE COURT: Perfect. Absolutely.

MR. LACOUR: Your Honor, as we began the opening

statements, when there's an area of medical uncertainty, the State has wide discretion to regulate. So if it's not so clear to you as to which side's experts have it right, if you see that uncertainty, then under Supreme Court precedent, the State 13:03:29 is allowed to regulate.

The State has to think about all 5 million Alabamians. We have to take all that into account when regulating in these areas where it is not certain.

The judge has an important but a limited role in our 13:03:45 federal system to see whether those judgments the State has reached in those areas of uncertainty somehow conflict with the Constitution.

And we submit we have come forward with evidence to at least put into question whether there is this consensus that 13:04:03 has been proclaimed by the plaintiffs here.

Again, I think the bar on the plaintiffs is quite high, to show an absence of uncertainty, or to show some great certainty.

And when you look at the international studies and the 13:04:19 literature reviews, when you hear from very qualified experts like Dr. Cantor, who have applied great rigor to these studies that are being relied upon by the plaintiffs, by their experts, by the AAP, for example, then I think that is enough to create that doubt to create that space for uncertainty. And when that 13:04:45 is there, the State can step in.

So that's how we see it. We don't think that you sit here as an independent medical board to assess whether a particular treatment is going to be the best for any particular individual. The role of the federal courts in our federal system, the laboratories of democracy is to see if we have done something that is somewhat inexplicable.

I think there is ample evidence to explain why the State has done what it's done in addition to the lengthy legislative findings in SB 184.

We have come forward with multiple experts from fields of endocrinology, psychology, and pediatrics, and have brought forward substantial amount of other peer-reviewed research and literature reviews to show that this very novel area of the law -- keep in mind the UAB clinic didn't open until seven years ago. This is a novel area of medicine, rather -- is just, in the State's judgment, too risky. And if that's a reasonable judgment for the State to make, then that's the end of the case.

THE COURT: All right. Mr. Doss.

MR. DOSS: Your Honor, I'm unaware of a case that establishes that principle that's so long as there's uncertainty and a reasonable judgment, then that alone is sufficient for the State to violate constitutional protections.

The standard of review is what I think helps frame some of this testimony. So, for example, if strict scrutiny applies,

it is the State's burden to establish a compelling state interest. And that its infringement on the constitutional protection has been narrowly tailored.

And I guess to preview Your Honor for closing, that is a 13:06:40 key focus that I plan to spend some time with in closing on why this testimony we've heard yesterday and today, number one, does not establish a compelling State interest. But number two, even if you assume that it does establish some interest by the State, the interest that the State has identified and the 13:06:58 regulation that it has imposed are mismatched. It's not narrowly tailored for the very reasons offered by the State through its witnesses.

And based on the standard of review, it is not a reasoned judgment. That's not the test for when a constitutional 13:07:13 violation has occurred. The test is whether there is satisfaction of this demanding standard for the law's viability.

And so as I mentioned in opening, I don't think that Your Honor's job for the purpose of this hearing is deciding 13:07:31 ultimately maybe even who is right. It's to show that there is scientific -- there are standards of care that exist, there are approved approaches to dealing with these issues. These are real medical diagnoses. These are real medical treatments.

And though the State may disagree them, that's not enough 13:07:50 to establish the violation of the constitutional rights, Your

Honor.

THE COURT: And on that note, at least from what I can tell from both sides, State and government, and original plaintiffs, am I correct to say that everybody agrees that these are real diagnoses? Or no?

13:08:07

MR. LACOUR: Your Honor, could you --

THE COURT: And I am going to say this one more time. I don't need head nods. It is out of hand. This is not entertainment. This is the real world and the law. So we're not in a movie theater. I don't need head nods. I don't need approval or disapproval. If you want to do that, take it outside.

13:08:25

Go ahead.

MR. LACOUR: Your Honor, I think -- Your Honor, we agree that gender dysphoria is a psychological diagnosis, but as we have shown in both our written evidence and through witness testimony from both defense witnesses and plaintiffs' witnesses, we don't know whose gender dysphoria is likely to persist. And that's very important.

13:08:46

Even Dr. Antommaria this morning said that if you -- the level of certainty you have --

13:09:07

THE COURT: You are giving me more detail than I want. I just need you to answer my question.

MR. LACOUR: Okay. Can I respond to something Mr. Doss said before?

13:09:21

THE COURT: Very quickly.

MR. LACOUR: He is unaware of the standard. We cited it multiple times in our P.I. response. It's Gonzales vs. Carhart, a 2007 decision from the Supreme Court where the federal government had regulated partial birth abortion. That was an area of medical uncertainty.

13:09:32

There were -- I will go back and I will look at the filings in that case, but I would be shocked if the AMA did not chime in, in favor of the plaintiffs who were challenging the ban on partial birth abortion there saying that it was a safe or necessary -- medically necessary treatment for some people.

13:09:46

It was enough that Congress found medical uncertainty there. And there were values, as well, in unborn life that Congress was able to promote even though there were medical organizations.

13:10:04

I will confirm this before closing, but I am fairly certain there were medical organizations who were not fans of Congress's action there.

Even so, and even in an area like abortion where there is more law at least for the last 49 years in that space, addressing some right to abortion, even then, that ban was upheld by the Supreme Court.

13:10:16

THE COURT: And I'm sure you can get into that on closing.

Let's go back to my original question. Just answer it

13:10:31

succinctly for me.

MR. LACOUR: And that would be are these real diagnoses?

THE COURT: Yes. Just answer my question in two sentences.

MR. LACOUR: Gender dysphoria is a diagnosis. I think the debate is how should it be treated. And SB 184 is expressed in Section 6.

There's no ban on psychotherapy whatsoever. The ban only applies to these novel risky potentially long-term harm-inducing or causing medications.

THE COURT: So no argument from the State on status, diagnosis, any of that? You are only -- your only issue is treatment; is that correct?

MR. LACOUR: Correct, Your Honor.

THE COURT: Got it. Thank you.

Anything else, Mr. Doss? And I will give the government a shot --

MR. DOSS: No, Your Honor.

THE COURT: -- if they want to be heard.

MR. CHEEK: Nothing else to add that hasn't already been said, Your Honor. Thank you.

THE COURT: Okay. All right.

Mr. Davis, I have gotten right in the middle of your witness again. Sorry. Pick it back up.

MR. DAVIS: I certainly understand, Judge.

BY MR. DAVIS:

Q Okay. Dr. Cantor, we to try to pick up where we were.

Let's take two young boys, eight years old, say. So puberty hasn't started yet. They both have gender dysphoria, even though they may not really understand it yet.

And I know I'm asking you to assume some things that an outside observer may not be able to confirm just by looking at that child.

And let's assume that both those young boys would, if not intervened with transitioning care, would both grow up to identify as gay.

So the boy who is left alone to go through natural puberty, what does he come to understand once puberty kicks in?

A Once he -- as puberty kicks in, of course, sex drive comes in as a part of that, and he starts experiencing sexual attractions and sexual arousal.

That, then, because he is experiencing it towards other men, teachers, peers, whoever it is, he can now -- he now has the opportunity to understand the nature of his experiences and why he doesn't feel quite like other boys, why he doesn't feel as masculine, and why he doesn't feel as masculine.

Now, in otherwise healthy circumstances, he will grow up to be a healthy gay man.

Q Now, the other boy is given puberty blockers. What

happens in his case?
A Such a person who does not develop sexual -- the capacity for sexual arousal and sexual attractions because the very biological features which produce that have been held from him,
13:13:14 he never experiences an orgasm. He never experiences sexual arousal, and doesn't have the opportunity to understand the other potential explanations for why he feels the way he does, and go from a child's understanding of why he doesn't feel like other boys, to an adult's understanding of why he doesn't feel
13:13:36 like other boys.

By blocking puberty, you are blocking the very information that he needs to understand his own situation.
Q And you are not claiming to describe every person who is experiencing gender dysphoria, I take it?
13:13:49 A Correct.
Q Does the evidence show that sexual orientation changes after a person identifies as gay or lesbian?
A No. There is no evidence to suggest that sexual orientation is unstable or changes.
13:14:05 Q What does the evidence show about whether a person's gender identity can change?
A That shows the very opposite. Among the children, it changes in the majority of them.

They're even people who identify and describe themselves,
13:14:19 for example, as being fluid, the very definition of which is

that their gender identity changes on a constant basis.
Q Are you familiar with the argument that if we do not allow minors to transition medically, the result will be increased suicides within these group of young people?
13:14:38 A I've heard that said, yes.
Q Does the research literature support the argument that denying these treatments will lead to an increase in suicidality?
A No, it does not.
13:14:50 Q Are you familiar with what other countries are doing, with respect to treatment of gender dysphoria?
A Yes, I am.
Q Are there any changes going on in recent years?
A Very much. In fact, things -- it's almost as if the
13:15:10 pendulum has reached its far point, and it's now coming back to a much more moderate evidence-based tone.
There was really -- sparking off of the social media age more than anything else, we're able to identify a greatly, greatly accelerated, great and greatly expanded number and type
13:15:31 of person who was potentially going to go through transition entirely, unlike the groups which we had previously studied.
Several countries, especially in Europe, permitted them with lower and lower standards. And then once the reports started coming out that that was failing greatly, they're now
13:15:53 restricting very, very quickly and very, very greatly.

The two most substantial bans have been in Sweden and in Finland. And there are also now very, very strong statements urging the medical field to pull things back in the UK and in France.

13:16:08 Q Dr. Ladinsky testified yesterday that -- I don't have her exact words in front of me -- but she said that what's going on in the UK and Sweden and Finland isn't as relevant here because those countries have a centralized health-care system, whereas we have a less centralized health-care system, and all these

13:16:35 experts unrelated can see the same child.

That's a poor paraphrase. The record will speak for itself. But assume she made that type of testimony. Would you agree with her?

A No. I can't see the logic of it. It's certainly

13:16:53 feasible, in fact, more than likely that decisions are made differently when there are centralized boards and a centralized authority charged specifically with reviewing the evidence that will be the basis of the medical procedures of that country, and the U.S. lacks that.

13:17:11 But there's no reason to think that that situation would change the actual outcomes of the actual children getting the actual interventions.

Q So is it possible, then, that a more centralized health-care system may provide the ability -- an even greater

13:17:24 ability to study and evaluate the risks and benefits of

gender-affirming care?
A That's demonstrably true. That is exactly the process they have gone through. They have published the results of exactly their reviews, and that is how their health-care
13:17:40 systems -- that is what their health-care systems are responding to.
The American professional associations have not gone through such a comprehensive process. They're merely coming up with policies and citing only individual pieces of studies that
13:17:54 appear to support it, rather than a comprehensive review.
Q I want to close a loop on adolescent onset gender dysphoria. We talked about ways different groups are different.
What's unique about this group of adolescent onset, or you
13:18:11 referred to it also as rapid onset gender dysphoria?
A Yeah. It's been called both.
Where both the childhood onset and the adult onset are primarily male, the adolescent -- the adult onset and childhood onset are primarily male. The adolescent onset is primarily is
13:18:28 female. They present with a different set -- it's a different epidemiological set of characteristics, and the evidence that we have about both adults and children don't seem to apply to that middle group.
Q Does this group of people presenting with gender dysphoria
13:18:45 in their adolescence -- you said primarily female?

A Yes.
Q Do they tend to have any issues or comorbidities in common with each other?
A The most common one of those would be borderline personality disorders and other difficulties with integrating socially into their environments. As I say, such as autism and Asperger's syndrome.
Q You are not saying that's true for everyone presenting with gender dysphoria for the first time in their adolescence?
13:19:13 A Correct.
Q But many?
A Correct.
Q What does the research literature show about the desistance or detransition rates of people who transition after
13:19:25 first presenting with gender dysphoria in their adolescence?
A There has never been any such study.
Q Did you review the plaintiffs' reply brief, Dr. Cantor?
A Yes, I did.
Q Did you see any response to your report in plaintiffs' reply?
13:19:41 A Not a single comment. My name was never mentioned. None of the studies that I cited were referred to. None of the arguments were addressed. I don't believe I was quoted anywhere in it, unlike the other experts.
13:19:56 Q I did note a line that the plaintiffs criticized the

defendants' experts in general for relying on older studies.
A Yes. I saw that claim. I was a bit confused by it.
In my report, I provided a comprehensive list of every single study. There were 11 in total. So the old studies were
13:20:18 listed, the new studies were listed. It was comprehensive.
It was also a tangential argument. As I said, the 11 studies which have been conducted were unanimous in their findings. They all found the same thing. The majority desists.
13:20:33 So it doesn't matter even if one did rely only on the older studies, the newer studies showed exactly the same thing as the older studies.
Q We spoke a little bit about some of the things we heard from Dr. Antommaria this morning. I want to turn to some of
13:20:55 the things in his report.
You reviewed his written expert report, did you not?
A Yes, I did.
Q He -- Dr. Antommaria wrote on -- in paragraph 17 of his report -- and I will find a copy if you need it, but this is
13:21:07 one sentence.
Quote, gender-affirming medical care is supported by clinical studies. Is he right?
A That's true for adults, but that's not true for the other groups.
13:21:21 Q And Dr. Antommaria spoke about how if a drug is FDA

approved in one area, it's okay to use it off label in another area?

A That's what he said, yes.

Q What does the research literature say, or what opinion do you have about using the same drug, a puberty-blocker in the case of a person who's six, seven, eight, the purpose is to -- precocious puberty, what about the cases of precocious puberty and using puberty-blockers to help someone medically transition at the beginning of normal puberty?

A Well, the ability to use a medication off label is not a blanket permission to give any drug you want for any reasons you want or for any conditions you want.

Ultimately, it's going to depend on what the scientific literature itself says, which in turn is what the various regulatory bodies use to make their decisions to decide what's off label or on label to begin with.

So because a medication would be useful for some people in some situations and some circumstances, does not mean it's automatically going to be useful for other people in other circumstances. Indeed it could be deleterious.

If you use a puberty-blocker in somebody with precocious puberty, you are pushing somebody who is far below the average age of puberty, and you are bringing them closer to the species-typical range of puberty.

If you give that same drug to somebody who is already

having a typical age of puberty, you are now pushing them outside of the species-typical age.

Q Thank you, Dr. Cantor.

I am going to sum up. Does the research literature support plaintiffs' claims that we need to treat children and adolescents with gender dysphoria with social transition puberty-blockers and cross-sex hormones?

A I'm sorry. Could you say that -- I missed the first half of that sentence.

Q My apologies.

Does the research literature support plaintiffs' claims that we need to treat children and adolescents with gender dysphoria with social transition, puberty-blockers, and cross-sex hormones?

A No. That's terrible overstatement.

Q Does the research literature support Alabama's description of these treatments as experimental?

A Yes. They're fairly called experimental.

Q When does a drug or a course of treatment stop being experimental?

A That's an excellent question. There is no real test for it. There is no objective way to decide something is one versus the other.

Science is never finished. It's always possible for there always to be some future piece of information that changes what

we know.

There are, of course, you know, different situations -- drugs, issues under active investigation, where it's very clear that it's still experimental, and others where, you know, there is only very little question left.

For this particular situation, we have a very small number of studies that in certain situations might look like they might be helping, but a much larger body of better performed studies showing that the improvement is not actually coming from the transition itself.

Indeed, there were other areas of the report that were referred to already ongoing studies testing exactly these interventions. Well, that there exists ongoing tests of these interventions is pretty much the definition of calling something experimental.

Q If scientists are eventually able to replicate the same results under the same conditions over and over again, can you then pretty much say something is established?

A Yes.

Q Has anybody been able to replicate the results of, say, the Dutch study that showed at least some positive results with a combination of treatments?

A No. Most of the studies have demonstrated no improvement in these children from medical transition.

Q Do you understand plaintiffs to argue that Alabama is out

of step with groups like the American Academy of Pediatrics?
A Yes, I've heard them say that.
Q What's your response?
A Well, it's actually the American Academy of Pediatrics which is out of step with the international standards.
Q Is there a consensus, a medical consensus internationally in support of these treatments?
A There is now a very quickly developing one. It is still ongoing debate, so I would hesitate to describe it -- describe that there is a solid consensus.
As I say, really what we have seen is a pendulum swing which is overswung and now is substantially and very quickly correcting itself.
Q Is the pendulum swinging in favor of medical transition use of puberty-blockers and cross-sex hormones for children and adolescents?
A No. It's swinging now against that.
Q Is there a medical consensus in the United States for the best way to treat gender dysphoria?
A No, there is not.
MR. DAVIS: Thank you, Dr. Cantor.
THE COURT: So I do have a question myself.
Dr. Cantor, you said that an adult should be affirmed in their transgender status.
THE WITNESS: An otherwise mentally healthy adult,

yes.

THE COURT: All right. So make it clear to me, then, when should an adolescent or a child be affirmed in that status?

13:27:10 THE WITNESS: That, to me, is an empirical question. We are not sure actually when the best time do that is. Every time we check, we keep finding that, no, that's not exactly the right way. No, that's not exactly quite working. And when we do think we have run into a clue that gives us 13:27:26 an idea of when, we are not able to recreate that situation.

THE COURT: Is that case by case, then?

THE WITNESS: I would hesitate to say case by case exactly because --

THE COURT: Let me rephrase it. Under what 13:27:44 circumstances would you affirm a child or an adolescent?

THE WITNESS: I can't say that there's a situation -- all of the situations will be gray. I can't think of any evidence that would give us the kind of certainty in any case that would outweigh the potential risks.

13:28:19 THE COURT: So you would never affirm a child or an adolescent?

THE WITNESS: Not with the current evidence available, no.

THE COURT: Okay. All right. Cross?

13:28:28 CROSS-EXAMINATION

BY MS. EAGAN:

Q Good afternoon, Dr. Cantor.

A Good afternoon.

Q Dr. Cantor, you are an adult clinical psychologist, correct?

A Yes.

Q You are not a medical doctor?

A Correct.

Q Your private practice -- in your private practice in Toronto, the average age of your patients is 30 to 35 years old?

A Average, that would be about right, yes.

Q You've not ever provided clinical care to transgender prepubertal children?

A Correct.

Q You have not provided care to a transgender adolescent under the age of 16?

A Correct.

Q The extent of your experience, Dr. Cantor, working with transgender adolescents consists of counseling six to eight transgender patients between the ages of 16 and 18; isn't that correct?

A Yes.

Q So your clinical experience with gender dysphoria really lies in the counseling of adult patients?

A Correct.
Q And you acknowledge that gender dysphoria in children does not represent the same phenomenon as adult gender dysphoria, correct?
13:30:24 A Correct.
Q And, in fact, to use your words, they differ in every known regard, from sexual interest patterns to responses to treatments?
A Correct.
13:30:36 Q Dr. Cantor, you have never diagnosed a child or an adolescent with gender dysphoria?
A Correct.
Q Never treated a child or an adolescent for gender dysphoria?
13:30:48 A Correct.
Q You have no experience personally with monitoring patients who are undergoing puberty-blocking treatment?
A Correct.
Q You don't know what type of monitoring is typically done
13:31:04 or not done on those types of patients; isn't that fair?
A No.
Q No, that's not fair?
A Well, you -- I personally didn't do it, but I am aware of the procedures that are done.
13:31:15 Q Okay. But you have no experience with that?

A That's correct.
Q Similarly, you have never monitored -- or you have not monitored an adolescent or teenage patient on hormone therapy?
A Correct. Until -- well, I wouldn't be monitoring the
13:31:34 status in any case, so, yes, that's correct.
Q I am going to switch to UAB Children's, the gender clinic here in Alabama.
Have you ever spoken to a child or adolescent who was treated at the gender clinic here in Alabama?
13:32:00 A No.
Q Have you ever spoken to any former patients of the clinic?
A No.
Q You weren't here yesterday to hear Dr. Ladinsky talk about the treatment protocols they have at children's UAB, were you?
13:32:12 A Correct.
Q You weren't here to listen to the results of treatments provided to adolescent patients at UAB's Children's in the gender clinic; fair?
A Yes. They have never published them.
13:32:27 Q And you weren't here to hear them?
A Correct.
Q Dr. Cantor, you have no personal knowledge of the assessment or the treatment methodologies that are used here in Alabama at UAB Children's Hospital, correct?
13:32:42 A Correct. Correct.

Q You do not know the disciplines of the medical providers who are part of the treatment team involved in that assessment at UAB Hospital?
A Correct.
13:32:56 Q Now, I heard your opinion that it's important to assess the mental health issues of an adolescent patient to see whether that is a potentially contributing factor to gender dysphoria and whether there's a need to address. That's a fair statement of your opinion?
13:33:17 A I'm sorry. Would you repeat that, please?
Q Sure. It's your belief that mental health issues need to be assessed and addressed before a transition occurs?
A Correct.
Q Do you know what assessment protocols at UAB Children's
13:33:31 are to address mental health issues before a child is put on any transitioning medication?
A No, I do not.
Q Do you have any idea or do you know what the doctors at UAB Children's discuss with their adolescent patients about the
13:33:48 risks and the benefits of medical treatments at UAB?
A No.
Q Wouldn't you agree -- well, never mind. I am going to move on.
Dr. Cantor, I want to talk with you a minute about -- or a
13:34:18 little bit about your criticisms of the various studies

regarding the efficacy of puberty blockers and hormone treatments, okay?

A Yep.

Q As I understand your report and your testimony today, one of the criticisms you have of some of those studies is that it relies on participant's self-assessment I believe is the language that you used.

Essentially, it is based upon what socially transitioned youth and their family is reporting about their mental health in these studies?

A I would say that's incomplete. My criticisms would be relying on such subjective accounts entirely for all the decision making rather than using it as one part of the decision making.

Q In other words, basing your study based upon what the participants in the study tell you how they're feeling at different points in the study?

A Being limited to that is a problem, yes.

Q And I believe the way that you phrased it, you said, subjective self-reports about how one is doing may not be reflecting reality objectively.

A Correct.

Q But, Dr. Cantor, self-reports about how one is doing may reflect reality, fair?

A That's correct.

Q So when somebody says, I am doing well, my mental state is better, that very well may be the case?
A May be the case, yes.
Q Another complaint that you have, I believe, is what you call confounded data. And I believe you referred to the de Vries study for that?
A The two de Vries's studies, yes. As a matter of fact, it's all but two of all papers in that set of literature.
Q And by confounded data, the way that I am understanding it, what you're saying is that you are not able to tell because the data is, quote, confounded, whether one's improved mental health for a minor who has socially transitioned, whether that came from the actual medical services, whether it came from the psychotherapy, or whether it came from the combination of both?
A Correct.
Q But one thing, Doctor, that you do have to admit is when adolescents with gender dysphoria have transitioned through a combination of medical services and psychotherapy, you have to admit that based upon the studies, their mental health improved, correct?
A No. There were several studies that showed no improvement even though -- even though they were receiving both. I've listed them in my report.
Q Can you direct me to where in your report those are, please, sir?

A Sure.

THE COURT: While he is looking, did you say your target is an hour; is that right?

MS. EAGAN: Yes, sir. I believe I should be able to be done in an hour.

13:37:33

THE WITNESS: Page 20, footnote 40.

BY MS. EAGAN:

Q I'm sorry, sir?

A Page 20, footnote 40. The Carmichael study, the Hisle-Gorman, et al, study, and Kaltiala.

13:37:48

My full sentence was, New studies continue to appear at an accelerating rate, repeatedly reporting deteriorations or lacks of improvement in mental health, footnote 40 -- or again, those were the specific studies -- and then or lack of improvement beyond psychotherapy alone, footnote 41.

13:38:23

Q Certainly, Dr. Cantor, though, there are many study -- or there are studies that indicate when adolescents with the combination of medical service and psychotherapy transition, their mental health has improved. You agree with that statement?

13:38:40

A I would have to check to see if the number is zero or a handful. There have been reports of there having been such improvement, such as the Branstom study, which once it was reanalyzed, discovered to have problems, and the finding was withdrawn.

13:39:00

So there -- again, I would have to go through and check to be sure that it's not zero. It would be fair to say that there might have been a study which found such a thing. But the majority of studies are finding either no improvements or deteriorations, or it's a situation that we call a failure to replicate.

Q Sir, I am a little bit confused, because I want to go to two of your studies that you have actually talked about today, the Costa study and the Achille study.

Now, as I understand your testimony today, in those studies, there was -- the studies reported that there was an improvement in mental state for adolescents who were treated with medication and psychological treatment in transition that there was an improvement, but in those, you said you can't tell whether it's from the medication or from the psychological treatment?

A No. The Costa study and the Achille study associated the improvement specifically with the psychotherapy and ruled out that the effects were due to the medical interventions.

Q Okay. Well, let's pull those studies, Doctor, and let's look at those.

If you could, there should be a notebook up there that has plaintiffs' exhibits in it. Is that one plaintiff, sir?

If you could please, sir, turn to Plaintiffs' Exhibit 34.

A Yes.

Q All right. Plaintiffs' Exhibit 34, is this the -- do you say Costa or Costa?
A I'm sorry?
Q Do you say Costa?
13:41:05 A My guess is Costa. I have never met the person.
Q All right. Exhibit 34 that you have in front of you, is that the Costa study?
A Yes, it is.
Q All right. So, Doctor, I first want to focus in on --
13:41:18 well, let me ask this: This study was aimed at assessing gender dysphoric adolescents' global functioning after psychological support and after puberty suppression, correct?
A Yes.
Q Bear with me. I am going to take this out so I can put it
13:41:42 up on the Elmo, sir.
All right, sir. I am going to direct your attention to results that I have highlighted on my copy. Okay? According to the abstract here, the results?
A Yes.
13:42:18 Q At baseline, gender dysphoric adolescents showed poor functioning with -- it defines the mean scores. So baseline means at the start of the study, correct?
A Usually it does. I would have to check that that's exactly how they used the term.
13:42:35 Q All right. We will get to the details of that in a

minute.

Okay. Gender dysphoric adolescents' global functioning improved significantly after six months after psychological support. And then it goes on to say, Moreover, gender dysphoric adolescents receiving also puberty suppression had significantly better psychosocial functioning after 12 months of puberty suppression compared to when they had received only psychological support.

Did I read that right, sir?

13:43:07 A Yes.

Q Do you remember the methodology that was used for this study, sir?

A Roughly.

Q Pardon?

13:43:14 A Yes. Roughly.

Q Sorry. I meant to -- all right. And do you recall that the methodology was everybody started at baseline. For the first six months all of the adolescents received psychological counseling. And then for the next 12 months beyond that, one

13:43:36 group received puberty blockers, and one group just continued to receive psychological counseling. Do you recall that?

A Yes.

Q All right. And then I am going to direct you, sir, to page 2211 of the -- if you look at the blue writing on the top,

13:44:12 it's page 6 of 9.

A Yes.
Q All right. And I am going to direct you, sir, to on the CGAS on follow-up?
A Yes.
13:44:32 Q All right. And I am going to start at the second paragraph where it says delayed eligible. Do you see where I am talking about?
A Yes.
Q This is talking about there were three follow-ups, right,
13:44:43 at 6 months, at 12 months, and at 18 months for this study; is that correct?
A That sounds familiar to me, yes.
Q And let's read through that together.
Delayed eligible gender dysphoric adolescents, who
13:44:55 received only -- and gender delayed, GD adolescents, is your recollection that those were adolescents who were eligible to receive puberty blockers, but they delayed them for six months so that they had everybody at a -- doing psychological study? Do you remember this is the group that gets the puberty
13:45:17 blockers?
A Yes, that sounds correct.
Q Okay. The delayed eligible gender dysphoric adolescents who received only psychological support for the entire duration of the study -- excuse me -- I take that back.
13:45:29 This was actually the group that just got the

psychological -- had significantly better psychosocial functioning after six months of psychological support, okay?

However, despite scoring better at the following evaluations, they did not show any further significant improvement in their psychosocial functioning.

Did I read that right?

A Yes.

Q Also, the delayed eligible group continued to score lower than a sample of children adolescents without observed psychological psychiatric symptoms even after 18 months of being in psychological support.

So what that's saying is after 18 months, they were still below a group that did not have psychological therapy or issues, correct?

A Yes.

Q On the contrary, the immediately eligible group, who at baseline had a higher, but not significantly different psychosocial functioning than the delayed eligible group, did not show any significant improvement after six months of psychological support. However -- and this is the key -- immediately eligible adolescents had a significantly higher psychosocial functioning after 12 months of puberty suppression compared to when they had received only psychological support.

Did I read that correctly?

A Yes.

Q Then you see at the top of this, there is a chart. And when you look at this chart, the bottom is actually the three different check-ins. Time zero is baseline, when the study started, right?

13:47:18 A Yes.

Q Time one is the six-month check-in, correct?

A Yes.

Q And during that six months, both groups are getting just psychotherapy, correct?

13:47:31 A Yes, I believe so.

Q The rest -- and just to orient us.

The red group, the red line is the group of adolescents who only got psychotherapy or psychotherapy through the entire 18-month study, right?

13:47:46 A Yes.

Q The green line that you see that goes up -- goes up and keeps going up, that is the line of adolescents who receive puberty blockers; fair?

A Yes.

13:47:59 Q And so, Doctor, to get to the ultimate conclusion of this study that you say shows that puberty blockers don't work or don't give any improvement in mental condition over psychotherapy, the conclusion, this study confirms the effectiveness of puberty suppression for gender dysphoric

13:48:37 adolescents. Recently, a long-term follow-up evaluation of

puberty suppression among gender dysphoric adolescents after that CSHT, which is hormone therapy and GRS, which is puberty blockers, has demonstrated that gender dysphoric adolescents are able to maintain a good functioning into their adult years. This present study, together with this previous research, indicate that both psychological support and puberty suppression enable young gender dysphoric individuals to reach a psychosocial functioning comparable with their peers.

Did I read that conclusion correctly?

13:49:17 A Yes.

THE COURT: Ms. Eagan, when you reach a comfortable spot, let's take a post-lunch break.

MS. EAGAN: Perfect. We're good, Judge. We can go ahead and break now.

13:49:35 THE COURT: Okay. I will see you in 15 minutes.

(Recess.)

THE COURT: Go ahead, Ms. Eagan.

MS. EAGAN: Thank you, Your Honor.

BY MS. EAGAN:

14:09:00 Q Dr. Cantor, my understanding from paragraph 63 of your declaration is that the other study that you point to in support of your assertion that testing revealed that puberty blockers did not improve mental health any more than mental health does on its own is the Achille study you mentioned

14:09:29 earlier today; is that right?

A Yes.
Q If you, please, sir, could turn to Plaintiffs' Exhibit 42 in that binder in front of you, and this would be the plaintiffs' exhibits that we were looking at earlier.
14:09:42 A Yep. Got it.
Q All right. Is Plaintiffs' Exhibit 42 the Achille study that we just mentioned?
A Yes.
Q All right.
14:09:59 MS. EAGAN: Your Honor, do you mind if I take this off of this?
THE COURT: That's fine.
BY MS. EAGAN:
Q All right. I am going to -- so this is Plaintiffs' 14:10:15 Exhibit 42.
And the Achille study, again, was -- in this case if we look at the abstract, the background of the study or the purpose of the study was to examine the associations of endocrine intervention puberty suppression and/or cross-sex 14:10:35 hormones therapy with depression and quality of life scores over time in transgender youths.
That was the purpose of the study, correct?
A Yes.
Q And looking down to the results section, between 2013 and 14:10:56 2018 -- so this went over a five-year period, right?

A Yes.
Q And there were 50 participants in the study, correct?
A That sounds right, yes.
Q All right. And that they received endocrine intervention both -- some were in the form of puberty blockers, and some were in the form of cross-sex hormones, but endocrine -- and over that time period and completed three waves of questionnaires.
Is that your recollection of this study?
A Yes, roughly.
Q Okay. And when that was -- with those treatments, mean depression scores and suicidal ideation decreased over time, which means their depression was -- went down, or they got better. Suicidal ideation went down, which is improvement, correct?
A Yes.
Q While mean quality of life scores improved over time.
And then it goes on to say, When controlling for psychiatric medications and engagement in counseling, regression analysis suggested improvement with endocrine intervention. And then it goes on to say that this reached significance in male to female participants. And the male to female participants, those are ones that were receiving hormone therapy, correct?
A I believe they were both receiving hormone therapy. It

was not significant in one group, and so they're just reporting the successful in the other and not reporting the nonsuccessful group.

Q Well, let's talk about that. Let me pull up paragraph 63 of your declaration.

When you're discussing this study, here is what you said. You said that upon follow-up, some incremental improvements were noted; however, after -- so, in other words, upon follow-up, they saw improvements.

But after statistically adjusting for psychiatric medication and engagement and counseling, quote, most predictors did not reach statistical significance.

And that's your basis -- that statement is your basis to say there was not a statistical significance of difference between just counseling versus with meds; is that right?

A I'm sorry. Could you say that part again?

Q The language that you seize onto, to say that puberty blockers did not improve mental health more than mental healthcare did on its own --

A Right.

Q -- was the statement in the study that most predictors did not reach statistical significance.

A Well, I wouldn't say that I derived that just from that sentence. It's just easier to convey that idea to readers by using the sentence. My evaluation of the study is by those

statistics directly.
Q All right. Let's go to the language in the study that they talk about, the regression analysis that you were just referencing there.
14:14:11 Okay. And this is here in the regression analysis.
Let me first say this: The mean changes over time. And it does say, Mean depression scores decreased. Quality of life improved, but did not reach statistical significance.
But then when you go on to the regression analysis, here
14:14:39 is what it says. It says, Given our modest sample size -- which in this case was 50 people, right?
A Yes.
Q Given our modest sample size, particularly when stratified by gender, most predictors did not reach statistical
14:14:57 significance.
So one of the contributing factors to that, of course, was the size of the number of participants, correct?
A Yes. In statistics, that's a truism. The precision of the statistics is the direct -- direct result of the sample
14:15:20 size.
Q Okay. And then it goes on to say, That being said, effect sizes values were notably large in many models. In the male to female participants, only puberty suppression reached a significance level. And it gives the number in one of the
14:15:43 sample -- one of the tests, and associations with the two other

scores approached significance.

And then it goes on to say, For female to male participants, only cross-sex hormone therapy approached statistical significance.

14:15:57 All right. Statistical significance are not -- on all planes, the numbers improved, correct?

A No. That's -- the very meaning of determining -- factoring in whether something is statistically significant or not.

14:16:15 Q Ultimately, the writers of this study stated, if you look at the next paragraph -- or look on the discussion part if you want -- can you see the screen up here?

A Oh, I have the same thing on this screen.

Q Oh. You have got one. Okay, good.

14:16:31 Our results suggest that endocrine intervention is associated with improved mental health among transgender youth.

Did I read that right?

A Yes. Those are their words.

Q Doctor, to be clear, you agree that the U.S.-based medical 14:17:15 association guidelines and position statements are in support for the use of medical treatment combined with mental health treatment for adolescents with gender dysphoria, correct?

A I don't think I would phrase it quite that strongly. Most of the associations are using relatively vague terms. And it's 14:17:35 not clear when they're talking about adults or children, when

they're talking about transition, medical services versus psychotherapy, or a relatively blanket statement of demonstrating respect. I can only accept that they're endorsing a particular treatment when they're endorsing a particular treatment.

So is there a specific association or specific statement you have in mind?

Q The major medical associations that were involved in this space endorse the use of medications to treat gender dysphoria in children -- excuse me -- gender dysphoric adolescents once they reach puberty when appropriate?

A I can think of two medical associations, one interdisciplinary association, and the other -- and all of the others are, as I say relatively, vague words of support, and it's not clear exactly what it is that they're recommending.

Q Well, my understanding is what you like to look at is the international standards. That's what you're talking about today in support of your opinions?

A Oh, I looked at each of them, and I think I described each of them. I did my best not to leave any out.

Q So, and according to you, the Dutch approach is internationally the most widely-respected and utilized method for the treatment of children who present with gender dysphoria?

A Yes.

Q And the Dutch approach is also, I believe, what you call that watchful waiting approach?
A No.
Q Okay. The Dutch approach is what is accepted -- I have already said what you said.
14:19:24
The Dutch approach says social transition can happen at age 12, puberty blockers may be prescribed at age 12, hormones at age 16, and then resolve other mental health issues before transition. That's the Dutch method?
14:19:43
A Yes.
Q Do you know how that approach aligns with protocols that are utilized at UAB Children's in Alabama?
A I don't know.
Q In any event, what you say is internationally the most
14:20:03
widely-respected and utilized method for treatment of children who present with gender dysphoria, you would agree that that approach would be a felony in Alabama with this new law, correct?
A Yes. It's true that the Alabama law didn't leave an
14:20:26
exception for research purposes.
Q Okay. So let's talk about the European countries that you mentioned very briefly, the UK, Finland, Sweden and France.
When you look at those four European countries, Doctor, not one of them has enacted a ban to puberty blockers and
14:20:46
hormone treatments as Alabama has done here, correct?

A No.
Q That's not correct?
A Correct. That is not correct.
Q UK has not fully banned puberty blockers and hormone treatments in youth 18 and younger?
A That's correct.
Q Finland has not banned -- let me ask it this way: Has Finland banned blockers and hormone treatments in youth ages 18 and under for gender dysphoria?
A Yes, I believe it has.
Q It has?
A I believe so.
Q A blanket ban? Should I refer you to paragraph 131 of your declaration, sir?
A Hang on. That's just where I am now.
Q Okay.
A Oh, yes, they did leave an exception for hormones. The total ban was on surgery.
Q Thank you, sir.
Sweden, has Sweden put an absolute ban on puberty blockers?
A Yes.
Q And bear with me. Have they put a ban on puberty blockers and hormone treatments in youth ages 18 and under for gender dysphoria in Sweden?

A 18 and under?
Q Yes, sir.
A No. They allowed exceptions for 16 year olds -- 16 year olds within research circumstances.
14:22:32 Q Has France banned the use of puberty blockers and hormone treatments for adolescents ages 18 and under?
A No.
Q Can you point me to a single country, Doctor, in Europe that has put a blanket ban on the use of puberty blockers or
14:22:50 hormone treatments for youth ages 18 and under for gender dysphoria?
A Blanket ban in the way you're describing it, no.
THE COURT: How about any country?
THE WITNESS: No, not that I know of.
14:23:04 BY MS. EAGAN:
Q I want to turn very briefly to the subject of -- I will use your word desistance.
If you turn to paragraph 36 of your declaration.
A Yes.
14:23:36 Q In that -- you state, Among prepubescent children who feel gender dysphoric, the majority cease to want to be the other gender over the course of puberty ranging from 61 to 80 percent desistance across the large prospective studies.
I know that's a point that you also raised earlier today.
14:23:59 So I want to ask this question: Of those that number, do

you know, Doctor, what percentage of those kids cease to want to be the other gender -- that's using your words -- before or as they enter puberty, in other words, before they actually get into puberty? Do you know how many of those desisters are in that window?

A I must not be understanding your question, because it makes me want to say the same number that's in the report, 61 to 88 percent. What's different from what I said and what you're asking?

Q The 61 to 88 percent, is that children that realign with their birth sex before -- or as they're entering into puberty, that's that number?

A Yes.

Q Okay. All right. So I want to focus on a different category of youth. Let me ask you this: The medications in the United States, puberty blockers and hormone treatments cannot be given to kids for gender dysphoria until after they've actually entered into puberty, correct?

A Very many clinics are doing it as close to the beginning as soon as puberty starts as they are able.

Q But it's once they have entered puberty?

A Yes.

Q So let me ask you about that category of youth.

And that is adolescents who have entered into puberty, okay, and who have been -- have suffered from gender dysphoria

persistently, consistently, and insistently in childhood leading up to puberty, okay?
A Okay.
Q Do you have any data regarding what percentage of those individuals desist after they enter into puberty?
A No. I don't think that level of follow-up has yet been conducted.
Q And, Doctor, in fact, it's your belief that the majority -- that while the majority of prepubescent kids cease to feel trans, you know, to puberty or during puberty, in other words, as they enter into puberty, the majority of kids who continue to feel trans after puberty rarely cease?
A That does seem to be the case, yes.
Q Okay. Doctor, are you being paid to be here to testify today?
A Yes.
Q What's your rate?
A 400 an hour.
Q Who is paying your fees?
A The Alabama state -- State of Alabama.
Q Okay. Dr. Cantor, have you attempted to recruit parents in Alabama whose children have gender dysphoria and were prescribed or referred to gender-affirmative treatments, have you tried to recruit them to give a witness statement in this case that they believe the treatments are harmful?

A No.
Q Do you tweet?
A Yes.
MS. EAGAN: Your Honor, may I approach?
14:27:49 THE COURT: Yes.
BY MS. EAGAN:
Q Doctor, I've marked as Plaintiffs' Exhibit 45 a tweet Dr. James Cantor retweeted. And it's -- let me say this: Is this a tweet that you actually did?
14:28:40 A No. I --
Q You retweeted?
A Retweeted, exactly.
Q From a group called Genspect, or what's -- I don't tweet. Would you call that a group? I guess it's a group called
14:28:56 Genspect?
A It's there is a group called Genspect, and this is their Twitter account.
Q All right. And then you retweeted it?
A Yes.
14:29:03 Q And it says, Urgent. Attention. Alabama parents, if your child experienced gender dysphoria and was prescribed or referred to gender-affirmative treatments and you believe these treatments are harmful, please direct message, e-mail us at once. We are looking for witness statements. Can be anon.
14:29:26 By anon, I guess that means anonymous, correct?

A That would be my reading, yes.
Q All right. Doctor, have you seen a sworn statement under penalty of perjury for any Alabama parent whose kid received puberty blockers or hormones and the parent said the
14:29:50 medications hurt their kid more than they helped them?
A I'm sorry. Did you ask have I seen such a statement?
Q Yes, sir.
A Not that I recall.
MS. EAGAN: Nothing further.
14:30:05 THE COURT: Any redirect?
MR. DAVIS: Short.
THE COURT: Ms. Eagan, did you intend to offer that into evidence or no?
MS. EAGAN: Oh, yes. Thank you, Judge. I offer
14:30:37 Plaintiffs' Exhibit 45.
THE COURT: It will be admitted.
REDIRECT EXAMINATION
BY MR. DAVIS:
Q Dr. Cantor?
14:30:51 A Hi.
Q Is it true as a clinician you are not treating anyone who has presented with gender dysphoria as an adult or as a child?
A I treat adults with gender dysphoria, not children.
Q You are not treating them while they are adolescents or
14:31:09 children, you are not currently treating someone who is like

under age 16?
A Correct.
Q Okay. But you are familiar with the research literature on these issues, correct?
14:31:19 A Yes, quite.
Q And even those that are studying -- or children in adolescents?
A Of course.
Q You're knowledgeable about the treatment they're
14:31:29 receiving?
A Yes, very.
Q And are you knowledgeable about what the research shows about the efficacy of these treatments?
A Yes.
14:31:35 Q You had an exchange with Ms. Eagan where you admitted that a fact that is self-reported by a participant may be true?
A Correct.
Q What's the rest of that sentence?
A It is certainly not necessarily true. We need something
14:31:53 objective before we can make any decisions upon it.
Q Let's turn to the Costa study. That's at Tab 38 of the book of plaintiffs' exhibits.
MR. DAVIS: Your Honor, I'm sorry. I left a notebook. May I step over?
14:32:40 THE COURT: Certainly.

THE WITNESS: I'm sorry. You said Tab 38?
BY MR. DAVIS:
Q I was mistaken, Dr. Cantor. It was 34.
A 34 of the defendants'?
14:33:02 Q No. Of the plaintiffs' book.
A Yes. Now I'm back there.
Q Okay. Now, you have a line in your report in paragraph 57 of your report that I will just read to you.
It says, Both groups improved in psychological functioning
14:33:25 over the course of the study, but no statistically significant differences between the groups was detected at any point?
A Correct.
Q Okay. Are the three groups represented by the three colored lines -- the three groups you're talking about, the
14:33:41 three groups on the three colored lines on this chart I'm showing you?
A Part of the information is contained in that graph, yes.
Q Okay. Does this table tell us more about the statistical significance or lack thereof shown in the Costa study?
14:34:02 A Yes, it does. The results of this table, although much harder to read, indicate that there was no statistical significance between the groups.
Q Okay.
A What was changing in the groups was change over time
14:34:13 within the group relative to the same group previously. But

there were no changes -- no significant differences between the groups themselves.

Q Okay. What does it mean in a study if a finding lacks statistical significance?

14:34:29 A That there was a substantial probability of getting a pattern like that just by random chance.

Q And are there any reasons other than puberty suppression that the delayed group did not have the same change over time as the immediately eligible group?

14:34:45 A It's not exactly clear if they didn't change just as much. That's one of the ambiguities that, again, comes from statistics. When you look at it in different ways, you can see different aspects, different aspects of it.

Q And the authors actually noted statistical significance or

14:35:11 lack thereof, did they not, in the language that are bracketed there? It says, this difference failed to reach significance possibly because of sample size?

A That is correct.

Q Have you said anything about the Costa study in your

14:35:24 report that you need to withdraw after your exchange with Ms. Eagan?

A No. Everything I said is accurate.

Q Okay. Is the same true for everything that you have said about the Achille study?

14:35:39 A Yes. Everything I said was accurate. Nothing in the

prior discussion changed it.
Q The UK is still reviewing these treatments, are they not?
A They are in the middle of deciding what to do with what they have now discovered from their comprehensive review of the literature, which showed what they were doing was wrong.
Q What did they discover?
A They discovered that they said exactly what I said, that there is no evidence to support the medical transition of these children.
Q And they have not yet decided how to respond to that revelation, correct?
A Correct. They have now taken that report, and they're now reorganizing and deciding exactly what it is that they're going to do.
Q And in France, is it not correct that they've said about hormones that the greatest reserve is required for their use?
A That is correct.
Q And is it true that, quote, they have said that speaking of hormones, they're irreversible nature must be emphasized?
A That is correct.
Q And in Sweden, is anyone under 16 getting puberty blockers or hormone treatments?
A No. That is banned.
Q And what about over 16? Youth -- like --
A Between 16 and 18, they're permitted to do it, but only

within recognized research programs. A regular physician can't.

Q And how many such research programs are going on at present?

14:37:04 A Oh, in Sweden?

Q Are you aware of any?

A I am aware of one lab that has two locations. I don't know what its current status is with its current research program.

14:37:20 Q Okay. Can you say whether a single child under 18 is currently receiving hormones for the purpose of transitioning in Sweden?

A I don't know.

MR. DAVIS: Thank you, Dr. Cantor.

14:37:39 THE COURT: Any recross?

MS. EAGAN: No, Your Honor.

THE COURT: May this witness be excused?

MR. DAVIS: Yes, of course, Your Honor.

THE COURT: All right. You can step down, sir.

14:37:48 THE WITNESS: Thank you.

THE COURT: All right. Call your next witness.

MR. DAVIS: Your Honor, the State calls Ms. Sydney Wright.

THE COURT: All right.

14:37:54 SYDNEY WRIGHT,

having been first duly sworn by the courtroom deputy clerk, was examined and testified as follows:

THE COURT: And we think this will be how long, again?

MR. DAVIS: Less than 30 minutes on direct.

14:38:19 THE COURT: Good afternoon, ma'am.

DIRECT EXAMINATION

BY MR. DAVIS:

Q Good afternoon, Ms. Wright.

A Good afternoon.

14:38:26 Q Would you state your name for the record, please?

A Yes. It is Sydney Wright.

Q Can you pull that mic up a little closer to you?

A Yes. Will that work a little bit better?

Q Yes. Where do you live?

14:38:36 A I live in Cedar Bluff, Alabama.

Q And how old are you?

A I am 23.

Q What do you do for a living?

A Me and my wife own a business together.

14:38:47 Q What kind of business?

A We own a cleaning company.

Q Do you have any children?

A Yes. We have two.

Q What is your biological sex, Ms. Wright?

14:38:57 A It is female.

Q Did you at any time in your life seek medical treatment to try to appear more like a male?
A Yes, sir, for many years.
Q How old were you when you first decided to seek some type of transitioning care?
A I was 17 when I first started.
Q I've put a picture on the screen, Ms. Wright. This, for the record, is page 2 of Defendants' Exhibit 41. Is this you?
A Yes, sir, it is.
Q How old were you in this picture?
A This is my graduation pictures.
Q Were you about 17 when these were taken?
A Yes, I was. The summer before.
Q At the time -- at the time of this picture -- well, is this before you started receiving any cross-sex hormones?
A Yes. Yes. Yes.
Q To be clear for the record, at some point, you did receive testosterone, a cross-sex hormone in order to transition to male?
A Yes, I did.
Q What was going on in your life at the time that you decided that you were -- that you wanted to transition or to at least explore that?
A In my mind, there was this confusion inside of me that I was not matching with what was in my head, and what I saw in

the mirror with how I looked in the mirror. Like I felt like I was not the person I was supposed to be.

Q Had you been dating by the time you were 17?

A Yes.

14:40:37 Q Had you dated boys?

A Yes. I had -- I dated one man, yes.

Q Had you also dated girls?

A Yes.

Q Did you decide you would rather date girls?

14:40:48 A I sure did.

Q Did you at first struggle with coming to peace with the desire you had to date girls?

A I did. Both of my parents are very religious, as am I, and I struggled with being seen as being a lesbian and holding

14:41:06 my partner's hand and being seen that way, yes, sir.

Q When you started feeling that way, did having a feminine body cause you distress?

A Yes, sir.

Q What clicked for you? What first made you think that you

14:41:26 were living in the wrong body? What gave you the belief that you wanted your body to be more masculine?

A I first saw -- I never knew much about it until I got on Instagram, and I saw that others were transitioning.

And everything that I read up on it seemed to be so

14:41:40 positive, in that -- like that would fix the problems that I

was feeling inside, and it would fix my current problem of feeling like I shouldn't have been a woman.

Q Was it -- was most of what you learned about transitioning and gender-affirming care at first at least from social media?

14:42:03 A Yes. Yes, sir, most of it. Uh-huh.

Q Where did you turn for treatment when you decided, I really want to look into this?

A I turned to a psychologist at first. And then I turned to a gender clinic, as well.

14:42:16 Q Let's talk about the psychologist. How many times did you visit this psychologist?

A The psychologist, I visited them about six to eight times. I did keep going after I got my testosterone letter.

Q All right. How many times had you seen the psychologist

14:42:32 before you got the testosterone letter?

A I saw her one hour five times.

Q Okay. And I guess we need to make clear for the record what a testosterone letter is. What are you talking about?

A You have to have a letter to present to your gender clinic

14:42:49 doctor in order to be approved for hormones.

Q Now, understand I'm asking you to talk only about the experience that you had, not what anybody else going through this has had or what happened in any other clinics.

But for you, how deeply did you think this psychologist

14:43:13 delved into what was going on in your life before he or she

said, let's get you some testosterone?
A Looking back, she did not dive in deep. I was -- I went -- I had let known that I had been through trauma and that my parents went through a really bad divorce, and there was some very rough things in my childhood that was not dived into.
Q Did she also refer you to a mastectomy?
A Yes, she did.
Q Now, after you got your letters, did you go to a medical doctor to try to get these treatments?
A Yes, I did.
Q And where did you go? Is that the gender clinic you're referring to?
A Yes. I did go to the gender clinic.
Q All right. Tell me about your experience at the gender clinic.
A The gender clinic, they want to move you in and move you out as fast as they can with as little as talking to you as they can. The gender clinic I went to -- I went to two different ones, and they both acted the same.
The doctor that I gave my hormone letter to never even opened the letter. He kind of scoffed at me. And it was very belittling.
And I could tell right off the bat these people didn't care about me. And it -- and then you keep going. And I had read on my blood work on a couple lines, and he told me

everything was fine. And I started looking things up, and they were not so fine.

Q What do you mean you started looking things up?

A My blood work was showing signs that had never been shown in any of my blood work all through my life. And all of a sudden, they're off the charts. Like everything's going everywhere. And I'm starting to panic. I've committed my life to something, you know, and here I am now I -- you don't know what's happening. You're scared. So I was -- I was really scared at the time.

Q Did you seek medical treatment for these things that were going on?

A Yes. I ended up in the ER like four times.

Q Let's -- before we get further into that, let's talk more about these gender clinics. Where were they?

A In Atlanta, Georgia.

Q Okay. So you have never visited a gender clinic in Alabama?

A No. But they do, do them here at Planned Parenthood, and there is a couple of different places.

Q You don't have personal knowledge about those clinics?

A No, sir. Huh-uh.

Q So you saw the two clinics in Alabama (sic).

That first time you went, you said the doctor didn't even open your testosterone letter?

A No, sir, he did not.
Q Did you get the prescription for testosterone?
A He gave it to me without opening the letter. He -- I handed it to him, and he goes, great, here. You can go pick
14:45:58 your prescription up.
Q Okay. What do you do then? What do you do with your prescription?
A Well, I asked him, I said, am I -- what do I do? Like how do I -- are you going to give me my first shot today? And he
14:46:08 was like -- he kind of laughed at me. And he goes, no, not unless you are going to go pick it up from Rome and drive back to Atlanta, which was two hours, and bring it back to me. And I said, no, I can't do that. And he said, well, you can go home and figure it out. Watch YouTube videos. He said, you
14:46:24 can't kill yourself. So...
Q But you don't get the testosterone shot at the gender clinic. You get a prescription that you go get filled, and then you self-administer the shots?
A You can do it either way.
14:46:36 Q Okay. What were you told about the effects of testosterone?
A At the time, I was told everything you want to hear is going to happen. And I was told that there was going to be muscle mass increased, and that you are going to get facial
14:46:57 hair, and that your voice is going to deepen. You know,

everything that you are thinking is going to fix you.
Q Did your voice deepen?
A Yes, very much so.
Q Is it still deeper than it was when you were 17?
14:47:12 A Yes.
Q Is that likely a permanent effect?
A It is a permanent effect.
Q What were the other effects on your body from taking testosterone?
14:47:23 A Permanently?
Q Any.
A Any?
Q Let's start with when you were actually taking it. How did your body change?
14:47:34 A When I started taking it, the first couple things was my voice did drop. I did start to gain slight weight. And then after more months of being on it, the weight gain got very, very excessive. And I became prediabetic from my blood work and from the hormones. And then also my digestive system
14:47:55 started to not fail, but they were not working properly.
Q This picture, this picture is printed over two different pages, so I am trying to put it together now. Is that you?
A Yes, sir, it is.
Q And this is for the record pages 7 and 8 of Exhibit 42.
14:48:15 Where in the course of your treatment were you about this

time this picture was taken?
A A little under a year.
Q So you said weight gain. And then did you say prediabetic?
14:48:29 A Yes. I have become prediabetic.
Q And were you told that that was the result of the testosterone?
A Yes, sir, it was.
Q And this picture is from pages 9 and 10 of Exhibit 41, and
14:48:50 I will represent to you that the caption on this picture says that it was after a year on hormones?
A Okay. Yes. That one, yeah. That one.
Q That's you?
A Yes, it is.
14:49:02 Q And is that about a year after you were on hormones?
A Yes, sir.
Q How were you feeling physically?
A Physically, exhausted. I felt drained of life. Every bit of it.
14:49:19 Q Were you at least at first pleased with your body becoming more masculine?
A Absolutely. It was -- it was what I was wanting. That's why I can see both sides of everything.
And I was on the complete other side at the beginning. I
14:49:34 was all for this. This is everything I ever wanted. That's

why I did not want to -- I would have rather died than quit at the time.

Q Were you telling people you were a male?

A Yes.

14:49:46 Q Were you presenting yourself as a male?

A Yes. At the time, I worked for a very large corporation, and everybody referred to me as male.

Q Did you make any other changes in your life to reflect your change and identity from female to male?

14:50:01 A Yes. My driver's license and a lot of documents did reflect.

Q At the time, you were sure, weren't you --

A Oh --

Q -- that you wanted to be a male?

14:50:12 A -- 100 percent.

Q Were there any changes with your blood counts, like your red blood counts?

A Yes. My red blood cell count went sky high. That's when they started warning me of a heart attack or a stroke. That's

14:50:35 when things started getting way more intense.

Q Other than you mentioned being tired, feeling tired, did any of this -- any of the rest of this just make you feel bad in any way?

A Yes. So the red blood cell count -- I had no idea, but I

14:50:48 started itching very badly around my legs and my arms. It was

from the red blood cell count going up. My blood was starting to thicken. So it was putting me at a risk of heart attack or stroke.

They thought at one point I was developing a blood clot in my lung. And I was in the ER. And we had to do a couple of different painful tests. And they came to find out that it wasn't the blood clot, but that it was tachycardia, which was also caused by the hormones.

Q After you went to the emergency room, did you decide then, oh, I have made a mistake, I am going to get off these hormones?

A No. I was still determined.

Q Are you living as a male today?

A No, sir.

Q Are you a male?

A No, sir.

Q You are a woman, right?

A Yes, sir.

Q What changed? What made you at some point decide, I'm going back, and I am going to present myself as a woman and be the woman that I am?

A Well, one day my grandfather, who is the most important man in my life, like we had a down-to-earth talk. And we -- he made me realize a couple of things. And he said, if you will just quit, just for three years, just, you know, take a step

back, look at this at a couple of things. And so I did. I said, all right. You know what? You are not asking me to quit permanently. You are not asking anything outrageous. So, yes, of course. And so I quit. And that's where we went from there.

Q Let me show you the picture that's page 11 of Exhibit 41. Who is in this picture?

A My granddad.

Q And you?

A (Nodded head.) Yes. He -- he is the one that helped me and saved my life. And, gah, he's been a blessing.

Q That's you with your grandfather, though, right?

A Yes. He's never cared how I looked or anything, as long as I came to see him.

Q So he was suggesting that you get off the hormones long enough to look at things clearly?

A Yes. He was worried about my health.

Q Looking back, when you were going to the gender clinic, what did you need? Did you need medicine to try to make you look like a man? Or did you need counseling?

A I needed counseling.

Q You gave a written declaration in this case, did you not?

A Yes, sir, I did.

Q You had a line in there that I am going to read to you. For the record, this is Exhibit 27 and paragraph 23 of that

exhibit.

A Uh-huh.

Q You said, Unfortunately, there are more and more young people like me being deceived every day, being told that the solution to their insecurity and identity problems is to get a sex change.

Do you think the people telling those young people that are right, that that's what they need? They need a sex change?

A No.

Q Why not?

A Well, I believe that unfortunately that the doctors are out for the money, because there's a huge market on it. Because once you get somebody hooked on some medicine like this, you can never get off. It is a lifelong commitment. You have a lifelong patient.

But I also believe that at the end of every single day, I remember how I felt. At the end of every single day, I was a woman. You can't change it. There's no way -- like I could not change it. I could not escape what I was trying to escape. And eventually, you have to come to terms with that.

There's no -- I couldn't -- there was no way. And I lived it. I wanted it to be true. I wanted it so bad. But, no. At the end of every day, it's not.

Q What was your biological sex after you had been taking testosterone for a year?

A It was a female.
Q What was your biological sex when it said male on your driver's license?
A It was a female. I mean, every time.
14:54:52 Q So how long have you been off the testosterone and decided you're not going to go that course anymore, I am going to live my life as a female?
A I think I've been off for about three-and-a-half years, I would say.
14:55:09 Q Is there any way that you're different today physically -- still today as a result of having taken hormones three-and-a-half years ago?
A Yes. Yes. I still have to go to the doctor. I'm still having -- my digestive system is still messed up. I have
14:55:28 tachycardia still. I still have to get my blood work done because they're worried about my red blood cell count.
And some doctors -- my gynecologist isn't even sure if I am ever going to be ever be able to have children. It took my right away to have children.
14:55:45 Q Did you ever consider making a claim against the doctors who gave you these treatments?
A I tried to do a malpractice suit. And I couldn't find a single attorney to take the case.
Q Why not?
14:56:00 A They were afraid.

Q Afraid of what?
A They were afraid against the standard of code.
Q Was there any concern that you heard from any of the lawyers you spoke with about how long it had been since you had
14:56:15 received treatments?
A They were worried about the statute of limitations.
Q How long did it take you to realize that -- bad question. Let me start over.
How long did it take, from the day you set off on the
14:56:37 course of this treatment, to come to believe that the doctors had mistreated you?
A From starting it?
Q Yes.
A Okay. Half -- I would say around six to seven months I
14:56:51 started getting a little shaky feeling because I could -- I could -- I have common sense. I can see when people care and don't care about me. And when you're just being, you know. So I started seeing how they treated people. And I started watching the others at the gender clinics. And I -- it raised
14:57:13 more and more concerns as I went on.
Q Maybe some inkling. But I mean when you were -- when your eyes were opened --
A Oh.
Q -- and you realized oh, this was wrong? And you needed to
14:57:24 do something about it and possibly even seek recourse against

these doctors?
A That was -- when I was very much so in the hospital all the time was when I knew that I had to probably do a malpractice suit, or do something, or fight it. Because I didn't want anybody else to go through this at all.
Q It wasn't overnight. It took a while for you to come to that realization, right?
A Yes. It took months, years, like very, very time consuming. It took time.
Q Did you support Alabama's bill that affects these treatments?
A Yes, I did.
Q In what way did you support it?
A I spoke in support of the bill at the committee hearing.
Q The committee hearing. You mean the committee at the Legislature?
A Yes.
Q So you were a witness there?
A I was, yes.
Q Did you tell them that you hoped they would vote in favor of this bill?
A I did, yes.
Q What would you tell a young person who is struggling with gender dysphoria, feels like they were born in the wrong body, and they're wondering if the answer to their problems is to see

a doctor and get some hormones that will help them transition to the other sex? What would you advise that person?

A I would advise them to take a lot of time. Take a lot of time.

14:58:57 And you're going to realize in life that there is so many more important things than this. You are going to see that, you know, the people that care and love you. And just time will show you and open your eyes that it's not necessarily -- you will slowly see how you'll learn to love yourself. It 14:59:22 takes a lot of time.

And we can't fix who we are. But we are stuck who we are. And you should just love yourself.

And it doesn't matter if you are a girl. You can do guy things. And I can dress like a tomboy if I want. And it 14:59:37 doesn't have to be a certain way.

I've learned to love myself and love -- hold my wife's hand in front of other people. And it doesn't have to -- I don't have to transition for it.

Q Now, you have been through these treatments yourself, 14:59:55 Ms. Wright?

A Yes, sir.

Q Do you think doctors should be allowed to give minor children hormone treatments to try to make that person appear to be the other sex?

15:00:03 A Absolutely not.

MR. DAVIS: Thank you. I pass the witness, Your Honor.

CROSS-EXAMINATION

BY MR. DOSS:

15:00:17 Q Good afternoon, Ms. Wright.

A Good afternoon.

Q My name is Jeff Doss. I'm one of the attorneys representing the plaintiffs. We haven't met before.

Just to be clear, you don't know which of my clients, 15:00:34 Michael Boe, Zachary Zoe, Allison Poe, and Christopher Noe, all of whom are children, you don't know which of those children are, in fact, transgender, do you?

A No, sir. I would have no way of knowing.

Q Exactly. You don't know any of these kids, do you?

15:00:49 A No, sir.

Q And so you don't know whether any of my clients have been correctly diagnosed with gender dysphoria, do you?

A I don't believe in that diagnosis, sir.

Q I appreciate that clarification.

15:01:01 So, in your opinion, you don't think any medical treatments should be provided for anyone with gender dysphoria, do you?

A I believe that that's your own decision after the age of 21 or 18.

15:01:14 Q Another good point.

When you were testifying on direct examination, you kept using the expression young people, right?

A Okay. Uh-huh.

Q Now, you wrote an article in October of 2019 for the Daily Signal, correct?

15:01:29

A Yes, sir.

Q And that's marked as Defendants' Exhibit 41. And I will show you page 3 of that article.

You wrote, At age 18, I started seeing a bunch of transgender men's success stories on Instagram, right?

15:01:46

A Okay. Yes.

Q And you went on to write, I resented that and began to envy the transgenders. I looked into it for myself. Correct?

A Right.

Q So you were a legal adult at the time that you began considering that perhaps you were transgender, right?

15:01:58

A No, sir. I was 17. And then I turned 18 when I got the hormones.

Q Well, let's talk about that. On page 4 of the article, you wrote, I soon found a therapist who said she would help me, and I took her -- I told her I wanted to start the hormones on my 19th birthday, which was only five weeks off. She required only a one-hour appointment each week. Right?

15:02:19

A Right. Yes.

Q So did you start the hormones on your 19th birthday or

15:02:33

before?
A Started questioning at 17. 18, I started taking action to get a psychologist. And then I wanted to have the hormones by my birthday.
15:02:47 Q Okay. Did you, in fact, get your hormones by your 19th birthday?
A I was a couple of weeks off, but right at it.
Q Okay. So is it fair to say that when you received the diagnosis and you received the hormones, you were an adult?
15:03:00 A At the time, yes, uh-huh.
Q Ms. Wright, you are not and never have been transgender, right?
A I was transgender at some point, yes.
Q You considered yourself to be transgender?
15:03:22 A Yes.
Q Do you believe that you are, in fact, transgender?
A I am not now, no.
Q But at the time, did you believe you were transgender?
A Yes. When I believed it was something that could happen.
15:03:34 Q Okay. I believe you received a diagnosis of gender dysphoria; is that right?
A Yes, I did.
Q But sitting here today, you don't think that you really had gender dysphoria, right?
15:03:44 A No. I think it was a mental delusion.

Q So you did not think -- sitting here today, you don't think you had a diagnosis of gender dysphoria?
A No. I think I had mental problems.
Q Okay. And what was the name of the doctor who prescribed the testosterone for you?
A Katrina Jensen.
Q What practice was the doctor with?
A Balanced Living.
Q Okay. And that was in Georgia, right?
A Correct.
Q And, in your opinion, your counselor misdiagnosed with you gender dysphoria, right?
A Not that she misdiagnosed me. Because at the time, I did believe in gender dysphoria. That is why I was there.
Q Sitting here today, you believe that your counselor misdiagnosed you with gender dysphoria?
A Looking back, I don't think it was a misdiagnosis. I think it is a problem with gender dysphoria.
Q Okay. So do you think at the time you, in fact, did have gender dysphoria?
A You can think that the symptoms are similar and not necessarily the same as -- gender dysphoria, it's a mental problem. Like you don't see yourself as who you want to be, but it's probably caused from other issues coming in your life.
So necessarily, gender dysphoria is probably caused from

some other things coming from your life.

So I mean, I guess that she could have summed it up as that, yes, and whatever she put at the time was what she had thought. I -- I don't want to say I believe in it or don't believe in what she put at the time. She has since resigned counseling.

Q Okay. And to be clear, you have had no academic training, in terms of psychological diagnoses, right?

A No.

Q Okay. You testified that you tried to file a medical malpractice lawsuit against this doctor, but no attorney would take the case.

Did you report the doctor who prescribed the testosterone to you to any sort of state regulatory board in Georgia?

A I did not -- I reported -- I reported the counselor. The counselor has -- had her license removed, I believe. So that's the only one.

And then I tried to handle the doctor, but I could not make progress with the actual gender doctor.

Q When you say you tried to handle the doctor, what do you mean by that?

A I tried to -- I tried to do a malpractice suit and tried to report him anywhere I could.

Q So did you report the doctor to the state regulatory board concerning doctors?

A No. At the time, I didn't know how to do that.
Q All right. Ms. Wright, because you don't know any of my clients, you can't say whether or not they have benefitted or will benefit from puberty blockers or hormone treatments, right?
15:06:36
A Can I give a response? I can --
Q That's what I am looking for.
A Right. The only thing is I can say that it could harm them in the future if they change their mind. It's permanent.
15:06:48
Q But sitting here today, you don't know what benefits that they have experienced as a result of these medical interventions, correct?
A I don't know the benefits, but I do know the cons.
Q Absolutely. So you don't know what benefits they have
15:06:59
experienced, right?
A Sure.
Q All right. In your article that we looked at a second ago on page 14, you closed with, Until we do something, until the medical community puts up serious guardrails and begins to do
15:07:34
its due diligence, and until politicians grow a spine and step in, expect to see more young people scarred for life.
Did I read that correctly?
A Yes, sir.
Q Do you know what guardrails exist at the UAB Children's
15:07:48
health clinic?

A Please do tell me.
Q I am asking if you know.
A I don't. I want to know.
Q And then getting ready for today, I noticed -- I am not marking this as an exhibit, but I noticed, is this your LinkedIn page, Ms. Wright?
A I don't have it any longer, but at one point, yes.
Q Okay. And that's a photo of you when you appeared at the Alabama State House while testifying against this particular law, right?
A Yes, sir.
Q And if we go down a little bit, the about section, you wrote, I also speak as a child advocate in very large court cases all around the U.S.
Did I read that correctly?
A Yes.
Q Other than this case, what other court cases have you testified in?
A I have spoken for the VCCAP bills, the Vulnerable Child Protection Act. And I have spoke for South Dakota. I have spoke for Alabama a couple of times. And I think that's all at the moment.
Q And let me clarify. You wrote court cases.
A Oh, well --
Q Have you ever testified in court before?

A No. I'm -- I might not be the brightest on lawyer terms.
Q Likewise, under volunteer experience, you wrote that you are a public speaker for Compassion Coalition, and you said, I travel and speak at very -- all caps -- large court cases that change laws and standards of care and health, as well as make new laws. Right?
A That was what I helped with at one point.
I was trying to build my resume to try to look good for a position that I had put some experience that I did on there. So this is what I have experienced, not what I have done or any positions that I hold.
Q Okay.
A What does my past have to do with -- my past work have to do with the court case -- or not court case, but today?
MR. DOSS: One moment, Your Honor.
THE COURT: Uh-huh.
MR. DOSS: Thank you, Ms. Wright. That's all the questions I have for you.
THE WITNESS: Perfect. Thank you.

REDIRECT EXAMINATION

BY MR. DAVIS:
Q Ms. Wright, were you just mistaken when you referred to other events as court cases?
A Yes. 1,000 percent. I was -- and that was probably three years ago when I spoke at my first one and was extremely

excited.
Q Now, you said you do not support medical treatment for folks with seeking to transition. Let's be clear about that.
You mean -- did you mean by that like puberty blockers and cross-sex hormones, that's what you're against?
A Right. Yes.
Q Are you in favor of those folks getting counseling?
A Yes, 1,000 percent. I want all the children to be helped.
Q Do you consider yourself to have been mature enough to make the decision to transition to male and to take the hormones?
A No.
Q And you were how old at that time?
A At the time, I was 19. I still probably wouldn't have been good by 21.
Q Do you think under any circumstances a 13, 14, 15 year old would be mature enough to take these drugs?
A Absolutely not. If you would have told me that I could have become an animal or something at 12, you know, you would have taken that leap or something? No.
Q Thank you, Ms. Wright.
A You're welcome.
THE COURT: May this witness be excused?
You can step down, ma'am. Thank you.
THE WITNESS: Thank you.

MR. DAVIS: Your Honor, the State defendants have no other witnesses.

THE COURT: Okay. All right. Well, then, why don't I give everybody 20 minutes to get ready for their closing.

15:11:38 You know, again, I will give everybody 25 minutes. I think that's probably too long. I'm really interested in you giving me your analysis and tying in your evidence here at the end.

You know, to the United States, you know, I would say 15:11:51 since you are only arguing one issue and not five, to the extent you can limit yourself to ten, that would be appreciated, as well.

Does that sound reasonable to everybody?

All right. And by the way, if anybody just, you know, 15:12:04 needs five minutes, that's okay, too. So don't be compelled to use all your time.

Okay. Well, let's take 20 minutes so you have time to kind of recap, and we will come back and knock those out. Thank you.

15:12:17 (Recess.)

THE COURT: Please be seated. Thank you.

All right. Let's go ahead and get started.

Tell me how you think your time usage is going to run, Mr. Doss.

15:33:26 MR. DOSS: Hoping well below 25 minutes, Your Honor.

THE COURT: Excellent. Excellent.

So instead of asking any hypotheticals and putting anybody on the spot too hard, let me just say, you know, and I think you probably will do this anyway, but I would like everybody to directly address how to read Bostock and Brumby together.

I get it that Fourth Circuit precedent is not binding here, but I also want to see what you think the interplay is with Grimm. And then anything else you want to tell me.

But that would kind of be at the front of my mind. Everybody read those together for me.

So all right. Go ahead.

MR. DOSS: May it please the Court.

First, Your Honor, thank you for your time the past two days.

The State has spent the last two days, Your Honor, answering a question that is not dispositive of anything.

The State has focused and questioned our witnesses and introduced its own evidence to prove that there exists medical risks associated with the treatments that this particular Act aims at banning. We don't dispute that premise, Your Honor. We haven't disputed it since the beginning.

There is no such thing as a risk-free medical treatment. No one has come forward into this courthouse and identified what that risk-free treatment would be.

Mr. Bowdre, I thought it was telling when he was

questioning the United States' expert this morning, Dr. Antommaria about what if a person has a 40 percent chance of persisting, would it be appropriate to prescribe gender-affirming treatments? But that is simply not how clinical practice works, Your Honor.

15:35:22

No doctor in the state of Alabama that Your Honor has heard about is making these sorts of sterile clinical judgments based on statistics alone. It is a three-dimensional assessment that takes into account the parents, the child, the network, the child's background, the history of gender dysphoria that the child may have presented with. All of these issues are taken into account. It's never as easy as opening a book and looking at statistics and basing a medical judgment upon it. It requires individualized attention and individualized treatment.

15:35:41

15:36:04

Even Dr. Cantor suggests that multiyear diagnoses preceding medication ought to be the widely-accepted approach in this area. But this Act, Your Honor, strips doctors of that ability, and it strips the parents of the ability to weigh those risks. It is a fundamental freedom in this country, Your Honor, that parents have control over the care and custody and medical matters affecting that parent's child.

15:36:27

But the State replaces that right to weigh the risks. With its categorical prohibition, it supplants parental judgment and replaces it with the State's sole unchallengeable

15:36:54

without exception judgment that no child should receive these.

There was a question this morning by the State to one of the witnesses that if a nine year old with diabetes receives insulin, that would be effective, but if a nine year old without diabetes receives insulin, it would be, quote, very dangerous. That hypothetical illustrates exactly what the problem the State is concerned about. Whether the diagnosis is accurate, and if it's not accurate, the treatment.

It makes sense that if you don't have diabetes, you shouldn't be prescribed insulin. In the same way, if you don't have gender dysphoria, it may cause issues if you're prescribed these gender-affirming treatments.

That becomes relevant, Your Honor, because of the standard of review applicable to our due process claim on behalf of the parents. Because the State is interfering in a fundamental right, the State must show a compelling State interest, and the State must show that these laws are narrowly tailored to meet that interest. This Act fails on both levels.

First, even if the Court were to credit all of the evidence in the State's favor and find that the evidence demonstrates a compelling interest, that alone does not save this law. If we take a step back and look at the evidence offered by the State, the principal concern, as I understand it, is that there's a strong possibility of desistance, as the State says. So this idea of watchful waiting is better than

medical intervention.

But that's a problem with the diagnosis, Your Honor. By definition, the obliteration of choice, the obliteration of treatment cannot be narrowly tailored.

15:39:05 Perhaps if the State had implemented regulations that set forth concrete guidelines that a clinician must follow before prescribing these medications, maybe that would present a closer question. Maybe we wouldn't be here today.

But the State didn't do that. The State took all

15:39:28 treatments off the table and made it a felony to follow these widely-regarded medical approaches.

A concern for misdiagnosis does not call for the obliteration of choice and treatment. I expect the State will cite to the Carhart vs. Gonzales opinion for the proposition

15:39:56 that medical uncertainty gives the government wider discretion in terms of regulating medical treatment.

Carhart, Your Honor, was an abortion case. It concerned the federal so-called partial birth abortion ban. And as Your Honor might expect, there's a very different analysis

15:40:17 associated when you're considering an abortion regulation, as opposed to when you're considering the deprivation of a fundamental freedom like parental choice.

Setting aside that difference, even assuming we can draw some meaning from the Carhart decision, the language that the

15:40:36 State is seizing upon, this issue of medical uncertainty, was

only part of the analysis. That may have given the State some interest in regulation, but that alone was not the end of the inquiry.

The Supreme Court went on to consider whether the 15:40:58 regulation imposed an undue burden, including whether the regulation would cause harm. We have shown, Your Honor, that this Act will undisputedly cause harm.

Our four plaintiff parents have very similar stories. You heard from one of them live, Ms. Poe. I don't think anyone can 15:41:27 hear her testimony and think that she is not sincere, that she doesn't have the best interest of her child in mind, and that she's -- she is seeing positive transformative, amazing benefits from these treatments that the State has dubbed risky.

Our other parents share similar stories. And those are 15:41:53 reflected in the declarations which we've submitted for Your Honor's consideration.

In this case, even if Your Honor were to apply that Carhart standard, which the State seems to be proposing, this law still fails. It undisputedly causes harm to those it is 15:42:14 seeking to supposedly protect. It is stripping them of positive medical treatments that exist.

Over the past day and a half, Your Honor, we have heard a refrain that these treatments are experimental. We've heard one -- two witnesses now define what that means.

15:42:40 Dr. Ladinsky gave an explanation. It doesn't fit these

treatments.

Dr. Cantor gave a definition I thought was interesting. As Dr. Cantor noted, it's very difficult to say when it no longer is experimental and it's established.

15:42:56 Under the State's logic, simply by dubbing a treatment experimental until we've reached some unknowable and undefinable level of certainty, that alone should be sufficient to override parental choice.

The problem, though, Your Honor, is that there are risks 15:43:15 with every medical treatment, and there are always unknowable risks. That's what makes them unknowable.

I can think of many commercials I have seen over the years where medications that have been on the market for years, some studies begin to associate them with adverse risks. And 15:43:32 plaintiffs' attorneys are soliciting clients because of these newfound risks.

In that regard, Your Honor, if we were to be as risk averse as the State is proposing, I submit with the introduction of antibiotics, the State likely wouldn't have 15:43:48 been on board because it had unknowable risks, despite our now knowledge that they are life saving.

At some point, medical treatment is going to be new. But newness on its own doesn't make it bad. And it certainly doesn't justify the State's interest in obliterating it and 15:44:06 criminalizing it.

And that is exactly what the Arkansas -- Eastern District of Arkansas found in the Brandt case. In that case, Your Honor, it didn't criminalize the parents. It only criminalized the physicians.

15:44:26 The Arkansas Court there still recognized that the physicians -- because this so intimately implicates parental choice, the physicians even had standing to assert those fundamental protections on behalf of their patients' parents.

The Eastern District of Arkansas found that the law in 15:44:47 Arkansas, which again didn't criminalize anything, it applied civil penalties. It was less egregious than the law here. Even the Arkansas law violated these fundamental protections and failed at strict scrutiny.

But we also challenge the compelling interest piece of the 15:45:13 strict scrutiny analysis, Your Honor. The State's compelling interest is, at best, that there's a concern for this desistance. But we have presented evidence suggesting that that concern is overblown.

Dr. Ladinsky testified that the standard of care endorsed 15:45:32 by every major medical association in the United States recognizes that the use of puberty blockers and hormone treatments can be appropriate in some adolescents with gender dysphoria.

Dr. Hawkins testified that the standard of care requires a 15:45:48 360 assessment that takes several months, and in some cases,

years before prescribing medical intervention such as puberty blockers. The standard of care allows time for adolescents to explore their gender identity, and not all adolescents receive medical intervention.

15:46:09 Recall, Your Honor, Ms. Poe's testimony. It took two years from the time that she and her daughter first visited the UAB Children's clinic until any medication was prescribed.

It is telling, Your Honor, that the State has been unable to identify a single doctor in the state of Alabama who has

15:46:38 ever run afoul of these kind of guardrails. It is equally telling, Your Honor, that the State has identified not one child who has received these treatments ever in the state of Alabama who later regretted them.

What we heard this afternoon was from Ms. Sydney Wright, a

15:47:03 Georgia resident who was an adult. Even if Georgia had had this exact same law in place, it would not have prevented her from obtaining the treatments she obtained. Ms. Wright's story is an unfortunate one. And if only Ms. Wright had had a doctor like Dr. Hawkins or a doctor like Dr. Ladinsky who was

15:47:31 committed to a deep meaningful evaluation of the child.

In Alabama, children receiving these treatments from the University of Alabama -- from UAB's clinic, they walk hand in hand with these physicians. That informs their choice.

We have introduced into the record, Your Honor, the

15:48:04 informed consents that parents are provided with, in addition

to loads of information. The parents still sign off on these treatments.

As Ms. Poe testified, she is terrified of what would happen if these treatments are prohibited. She knows well the risks, and she's weighed those risks against the benefits of receiving the treatment, and the devastating effects of not. And in light of that constellation, she exercised her freedom as a parent to make that decision in consultation with her child's team of doctors.

15:48:26 15:48:59 Indeed, Your Honor, even the study that the defendants have cited as the leading study, it recognizes the benefit of multidisciplinary approaches, including medical treatments in appropriate cases. The Dutch model that we heard about, it is the well-regarded standard nationally. It, too, would be illegal under this law.

15:49:19 So to the extent the State expresses some concern in support of its compelling interests, we submit that concern is hollow.

Even in the Carhart decision, Your Honor, the Supreme 15:49:37 Court acknowledged that a federal court's review of the constitutionality of a state statute looks at that underlying evidence, not just the State's stated concern.

In addition, as to the desistance risk, we've put in the Yale statement, Plaintiffs' Exhibit 19. There are two 15:50:06 footnotes that are important: 43 and 45. In that statement,

which is a literature review, it's a summary of the available scientific literature concerning this matter. It debunks this notion that there's widespread concern about desistance for the children who are receiving or eligible for treatment in the UAB clinic.

15:50:30

As I mentioned in my opening, Your Honor, at base, this law criminalizes a parent's concern and love for a child. There can be no clearer example of a violation of fundamental parental freedom.

15:50:57

So as to the other compelling interests that the State cites, the kids can't understand because they haven't had sex and don't know if they will want kids. These are difficult questions, Your Honor, admittedly.

And if I were a parent of a child going through this, I

15:51:13

don't know how I would weigh it. But that's the point. I don't. And it's not my job to weigh it for someone else. These are highly personal, intimate considerations.

There are risks of fertility with other medications. A child with cancer going through chemotherapy faces such a risk.

15:51:40

Under the State's logic, we ought to ban that. Of course, we don't do that.

In the same way, these treatments have proven, as Dr. Ladinsky testified, to be life saving. And they haven't been handed out like candy, as Dr. Cantor has tried to suggest.

15:51:56

There's no transition on demand in Alabama. It is not a

documented concern. I haven't even heard of it being a documented concern in the last day and a half anywhere in the United States.

The studies cited by the defendants in support of this concern for transition on demand, they all originate in Europe. Whereas, Dr. Ladinsky explained, regulation of hospitals, clinics in Europe, very different than it is in the United States.

The United States, the standard is clinics will have these robust protocols and procedures in place. They have these professional organizations that are providing this sort of oversight and input. We don't see that in Europe. So perhaps they may have been getting a little lax in Europe. But that's not happening in Alabama.

The defendants have suggested another compelling State interest is that the majority of kids ultimately align with their gender identity. But we've disproven that.

As Dr. Hawkins testified, gender identity is hardwired. It's unlikely to change. And once an adolescent reaches puberty, it's unlikely that they'll grow out of their gender dysphoria.

They suggest that a European pause is better than America's rush to treatment, but they have identified no country in Europe, in fact, no country in the world that has enacted a law like this one.

So for being a compelling State interest, I find it interesting that no other country has enacted a solution like Alabama proposes.

What does the State propose instead? Do nothing. Counsel them. That's an untested proposal. The State proposes an experiment on a grand scale. All transgender youth in the state of Alabama suffering from gender dysphoria should be guinea pigs.

15:54:01

THE COURT: I notice you're rolling through your time pretty good. Are you leaving some time to talk about your legal arguments?

15:54:21

MR. DOSS: Yes, Your Honor.

THE COURT: All right.

MR. DOSS: What's my time so far?

15:54:30

THE COURT: I think you are just about there, but I might spot you a little bit.

MR. DOSS: In terms of the equal protection, I am going to defer to the government -- the United States because they're arguing that one. But I do want to make a couple of points.

15:54:44

The Eleventh Circuit has recognized that a violation of the Equal Protection Clause occurs when you discriminate on the basis of transgender people on transgender status, gender identity.

15:54:56

In the State's opening, the argument I heard was that

that's in the employment context, and for employment, it may make a difference as to whether someone -- it should make no difference as to whether someone is male or female; whereas in the medical context, it does make a difference, and, therefore, it doesn't ultimately matter.

15:55:12

But it's not the Equal Protection Clause for an employment agreement. It's the Equal Protection Clause which ensures that no law forces the discrimination on the basis of sex. That that case concerned an employment issue is not the ultimate disposition. The issue is does the Equal Protection Clause recognize the discrimination on the basis of being transgender is, in fact, a violation? The Eleventh Circuit has said yes.

15:55:31

So in light of that ruling, this law does, in fact, do that. It defines the scope of the law, in terms of people who are transgender, of obtaining a medical treatment in order to align one's gender identity with one's sense of self.

15:55:49

By definition, the State tries to say not everyone with gender dysphoria is transgender, and not everyone who is transgender has gender dysphoria. But as Justice Scalia once noted, if you put a tax on yamakas, it's a tax on Jews. In the same way, not everybody may who has a yamaka may be Jewish, not every Jewish person may have a yamaka. But these things are so closely related that it's impossible to differentiate them and separate them out.

15:56:10

And in that regard, we think it does violate the Equal

15:56:30

Protection Clause. The State doesn't meet the standard of review for the same reasons outlined, with respect to the fundamental right to parental choice.

In terms of the First Amendment claim, I have appreciated the State's concessions, that they don't think that these things like referrals and mentioning the opportunities violates the First Amendment because of science or requirement.

But the problem is if you're making a referral for treatment as a doctor, you know full well what treatments are available, and you could, in fact, be construed as causing the receipt of those treatments. So it does criminalize speech.

THE COURT: So, you know, Alabama's criminal statute has a "but-for" in the definition of cause. So you think that overcomes the "but-for"?

MR. DOSS: I think the problem, Your Honor, it is not a proximate cause requirement. It's not the closest in time cause of treatment, but it is a "but-for" cause. It is a cause.

So had the child not received the referral, Dr. Ladinsky testified that 80 percent of her patients come to her through referrals. Had the patient not received the referral from the pediatrician, it's questionable whether or not the child would have been ultimately seen at the UAB clinic.

So it does raise a problematic chain of events. I mean, if it is a "but-for" cause, then that's all the -- alone that

is required.

THE COURT: I really like your chances in court in front of a jury if it comes down to just that.

MR. DOSS: As someone who primarily does criminal defense work, it's a little odd for me to be in court suggesting that something my client may do is a crime.

However, for purposes of this, I will say the way the statute's written, it's so broad. As the State argued in opening, a referral is both speech and an act.

So it is speech. In the same way the pastor's conduct could be swept under, that's enough to trigger First Amendment scrutiny.

As to the preemption claim, Your Honor, I will be brief. It's going to be primarily the same reasons as the Equal Protection Claim. There's at least the Northern District of Georgia case which recognizes that under the ACA, discrimination on the basis of sex can include discrimination due to transgender status.

It forces doctors to have to decide between compliance with federal law and compliance with state law. And, therefore, it should be viewed as preempted.

As to the void for vagueness argument, Your Honor, I think the State's responses to your questions throughout the past day and a half have illustrated the vagueness of this law.

When asked who is the primary defendant that the State

would charge, who is defendant number one that the State would charge under this law, the State hesitated. And you asked if -- Your Honor asked if it would only be doctors. The State hesitated.

15:59:36 The problem with this law, Your Honor, is no one can read this statute and get fair notice of what is and is not covered by the statute.

If I am a parent like the Noes, and I drive my child across state lines to get these treatments in Georgia where it 15:59:52 is legal, I've arguably caused. But I don't know. Maybe the State says that isn't covered.

If I am a treating pediatrician, if I am a local pediatrician, I make a referral, have I caused it? I don't know.

16:00:07 If I am a pastor, and I suggest that these things are available, have I caused it? I don't know.

The vagueness undercuts its constitutionality for those additional reasons.

Your Honor, we respectfully request that the Court enjoin 16:00:28 the enforcement of this Act.

THE COURT: Are you going to talk to me about Brumby?

MR. DOSS: That was the Eleventh Circuit --

THE COURT: Grimm?

MR. DOSS: That was the --

16:00:36 THE COURT: Bostock?

MR. DOSS: Bostock.

THE COURT: Three of those.

MR. DOSS: Bostock recognized in the Title VII context that discrimination against transgender people would be sufficient to qualify as a violation of Title VII. It's discrimination on the basis of sex.

Under Bostock, we think the same logic would apply when you're looking at either the ACA anti-discrimination provision or you're looking at the Equal Protection Clause, which would be consistent with Brumby, which was the Eleventh Circuit case I was referencing. I apologize I didn't mention the name.

But Brumby was the Eleventh Circuit opinion where the Eleventh Circuit recognized that both Title VII, as well as the Equal Protection Clause, protected against discrimination on the basis of transgender status.

THE COURT: So obviously Grimm is not binding precedent here.

And Bostock, the majority said, you know, we shouldn't prejudge what we might say about several other things, including the conduct in Grimm. And yet, they denied cert.

Do you want to read any tea leaves on that?

MR. DOSS: I don't, Your Honor. Only because I don't know -- it could have been a waiver issue. It could have been -- as to the denial of cert.

THE COURT: All right. Anything else?

MR. DOSS: That's all, Your Honor.

We respectfully request that the Court issue the injunction. We think that we've proven a substantial likelihood of success on the merits, as well as the other factors as laid out in our brief.

16:02:09

Thank you, Your Honor.

THE COURT: All right. United States.

MS. MONTAG: Good afternoon, Your Honor. Can you hear me?

16:02:25

THE COURT: I can.

MS. MONTAG: I'm Coty Montag on behalf of the United States. I intend to be brief.

At the outset of this hearing, the United States posed a single question to the Court. Does criminalizing certain

16:02:39

medical treatments for transgender youth and only transgender youth constitute a form of discrimination that's barred by the Equal Protection Clause?

The testimony the Court has heard clearly demonstrates that the answer is yes. And failing to enjoin Senate Bill 184

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before it goes into effect in two days will immediately and irreparably harm youth, families, and providers.

The balance of the equities strongly favors preliminary relief.

The testimony the Court has heard demonstrates that we

16:03:14

have met the requirements for preliminary relief on the Equal

Protection claim. And I want to briefly touch on the elements there.

First, the testimony set forth by the plaintiffs and United States demonstrates a substantial likelihood of success on the merits. Section 4 of Senate Bill 184 is subject to heightened scrutiny because it discriminates on the basis of sex and transgender status.

The law discriminates on the basis of sex by criminalizing gender-affirming care only when that care is being provided to transgender minors. The law prohibits transgender minors from obtaining care that has been well established as medically appropriate and necessary while imposing no comparable limitation on other youth for obtaining these same forms of care.

And Your Honor asked us to address Bostock, Glenn, and Grimm. And I just want to be very clear that these cases make clear the discrimination against transgender people is sex discrimination. And as Mr. Doss pointed out, in the Eleventh Circuit in Glenn vs. Brumby, this was in the Equal Protection context.

So because this is sex discrimination, heightened scrutiny must apply. And the burden is on the State to show that the law serves important governmental objectives, and that the means employed are substantially related to the achievement of those objectives.

And I just want to note from Bostock, when Justice Gorsuch said, Treating an individual differently because that person is transgender unavoidably constitutes sex discrimination because it rests on a person having one sex identified at birth, but identifying with a different sex or gender today.

Your Honor, defendants' assertion that the law does not discriminate based on sex is incorrect. There is no ambiguity in the law about the class of minors that it targets. It prohibits certain treatments only when used by those whose gender identity is different from their sex assigned at birth.

Defendants cannot meet the standard under heightened scrutiny. They cannot show that Section 4 of Senate Bill 184 serves important and governmental objectives, and that the discriminatory means employed are substantially related to the achievement of those objectives.

And I really want to touch on the substantial relation piece here, Your Honor, and make sure I'm connecting it to the testimony you have heard over the last few days.

First, as the Court has heard, the weight of medical evidence confirms that the medical care that Senate Bill 184 forbids is widely accepted, safe, effective, and medically necessary treatment for the health and wellbeing of some minors suffering from gender dysphoria based on individualized case-by-case consideration in accordance with well-established guidelines.

And for that, Your Honor, I would refer you to the testimony of Dr. Ladinsky, as well as United States Exhibit 7, the declaration of Dr. Antommaria at paragraphs 23 to 38.

The Court also heard testimony that the medical research supporting gender-affirming care is substantial rather than new or experimental, and that parents and minors are able to consent or assent to the risks involved.

And, again, I would refer to Dr. Ladinsky's testimony, as well as United States' Exhibit 7 at paragraph 16 and 21, and Plaintiffs' Exhibit 6, Dr. Ladinsky's declaration at paragraphs 7 and 47.

The Court has also heard testimony that individualized treatment is the goal here and that there is no rush to treatment under established guidelines for the care and treatment of transgender youth.

Again, this is from the testimony of Dr. Ladinsky, Plaintiffs' Exhibit 6 at paragraphs 9 to 13. It's very important here to emphasize that serious review and reconsideration at every step over a long period of time, normally years, is involved here. And all of the standards of care require a tailored approach based on an individual's needs.

The Court heard testimony that the medical care provided improves mental health for many transgender youth and reduces the risk of anxiety, depression, and self-harm. As Dr. Hawkins

testified, these youth receiving gender-affirming care not just survive, but thrive.

Again, I would refer to the testimony of Dr. Hawkins and Dr. Ladinsky, as well as Plaintiffs' Exhibit 3 at paragraph 27, and Plaintiffs' Exhibit 6 at paragraph 15.

16:07:53

The Court also heard testimony as to the many harms if these minors are not treated, including depression, anxiety, suicidal ideation, eating disorders, and substance abuse. And we heard that from Dr. Hawkins and Dr. Ladinsky.

As Dr. Antommaria testified this morning, the law puts clinicians in the untenable position of either having to follow state law and knowingly harm their patients, or face penalties, including imprisonment and loss of their medical licenses.

16:08:12

Your Honor, the standards of care for treating transgender individuals and particularly youth have evolved and will continue to evolve. But at the end of the day, it is well recognized that gender-affirming care can be and is an appropriate treatment for gender dysphoria for some transgender youth based on an individualized medical assessment in line with accepted standards of care.

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The well-recognized standards of care make clear that these treatments should only be made after extensive consultation with trained and qualified medical professionals, informed consent of the parents and the patient, et cetera.

But defendants' response through Senate Bill 184 is to

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simply criminalize access for transgender youth and only offer counseling.

At a minimum, even if there are two sides to whether this care is appropriate and effective and medically necessary, which, of course, we don't concede, that doesn't support a total ban, and a felony one at that. Instead, it supports individualized assessments of patients, which is already the status quo.

16:09:28

The State has repeatedly argued in its papers and during oral argument that its legislative judgments are entitled to deference, and that the State is not required to de facto accept or adopt the conclusions or recommendations of a medical association or anyone else.

16:09:45

But that's not what is at issue here under the Equal Protection Clause. It is well established that if the State makes the extraordinary decision of making a distinction or classification based on sex, which this law does, the burden shifts to the State to justify why it needs to take such a drastic step and why such a classification is necessary and justified. The weight of the evidence makes clear that the State has failed to meet that standard.

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Your Honor, I will not go into the other elements. We believe we have shown irreparable injury, the balance of the equities, and the public interests, and that they all justify preliminary relief.

16:10:37

The United States seeks to preserve the status quo here and ensure that transgender minors can continue to access medically necessary and appropriate care while the constitutionality of this law continues to be litigated.

16:10:54 And I will close by saying the issue before the Court today is not whether someone's gender identity is fixed at birth, or whether minors with gender dysphoria have a right to gender-affirming care in every instance, or whether there's evidence on both sides as to whether and when these treatments

16:11:11 are clinically indicated. Rather, the question is whether Alabama can outright ban these treatments in every single instance, and not only that, make it a felony to provide or cause such care. Under the Equal Protection Clause, it cannot.

The United States asks this Court to maintain the status

16:11:31 quo, and grant its motion for temporary restraining order and/or preliminary injunction.

THE COURT: All right. Thank you.

Before you begin, Mr. LaCour, let me ask you the one question based on the original plaintiffs' closing.

16:12:03 So if a parent drives their child to Georgia for this treatment, does that trip the statute?

MR. LACOUR: Your Honor, I think the key is to look at the words "engage in" or "cause, prescription, or administration," not just cause in a vacuum. You always read

16:12:22 statutes in context. And "engage in" also "prescribe or

administer" are shedding light on cause. I don't think just driving them there would be causing the administration. I think -- another way to think about it is what would be cause?

So engaging in the administration of the puberty blocker for the prohibited purposes would be, for example, if a doctor used a needle and engaged in the administration.

Now, if the doctor ordered a nurse practitioner to do that instead, the doctor might not be engaging in the administration, but the doctor would be causing the administration.

So I don't think buying somebody a bus pass or driving them to the doctor would be that closely related such that it would be causing the administration. This is not a butterfly flaps its wings in the Amazon, as the plaintiff suggested in the reply brief. This is, I think, much tighter to the other key verbs in the statute.

THE COURT: All right. Go ahead with your closing.

MR. LACOUR: Thank you, Your Honor.

Over the last couple of weeks, and the last two-and-a-half days, the Court has heard about children and families facing very difficult situations. But as a matter of law, this is not a difficult case.

As mentioned earlier, the State has wide discretion to regulate areas of medical uncertainty. This has long been the law. As the Supreme Court reaffirmed in Gonzalez, at 550 U.S.

163, when the State, quote, undertakes to act in areas fraught with medical and scientific uncertainties, legislative options must be especially broad.

So when there is competing evidence about benefits and risks, the State can evaluate that evidence and make judgments with all five million Alabamians in mind. That is a well-established role of the State.

What this means is that in our federal system, a federal court has an important, but limited role. It is not up to federal courts to make the determination of the best treatment options for any particular individual. Rather, the judge's job is to determine whether the Constitution bars states from regulating in a particular area of medical uncertainty.

So plaintiffs have not only failed to bear their heavy burden of showing a lack of medical uncertainty, they have confirmed that SB 184 does not discriminate on the basis of sex or transgender status for reasons I will address in a moment.

Now, earlier -- and I apologize, Your Honor. I had suggested that the AMA had supported the partial birth abortion ban in Gonzalez. It does not appear they submitted an amicus brief in this case, but numerous other medical groups did.

The California Medical Association, which represented 30,000 members, submitted a brief. The American College of Obstetricians and Gynecologists submitted a brief. The American Medical Women's Association, which was a national

organization of 10,000 women physicians, surgeons, and physicians in training submitted a brief, as did the American Public Health Association, the Medical Students for Choice, the New York Obstetrical Society, and the University of Chicago Hospital's Department of Obstetrics and Gynecology.

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Even so, the Gonzalez Court did not hold that Congress was somehow limited in its ability to regulate in an area of medical uncertainty. Quite the contrary.

The Court refused to adopt a, quote, policy that would strike down legitimate abortion regulations if some part of the medical community were disinclined to follow the prescription. Considerations of marginal safety, including the balance of risks, are within the legislative competence when the regulation is rational and in pursuit of legitimate ends.

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16:16:29

Rational and legitimate ends. That is the language of rational basis, Your Honor. That is not the language of strict scrutiny.

Mr. Doss suggested it's different because it was an abortion case. Well, abortion is an area of the law where for half a century the Court has recognized a fundamental privacy right. And there is no similar right to gender transition procedures. And these are quite new. They're quite new on the medical scene.

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So if anything, the fact that abortion was involved in that case cuts in the State's favor, not in favor of the

16:16:59

plaintiffs.

Plaintiffs' strict scrutiny rule we need to think about. What are the limits of it? I mean, it would destroy the system for FDA drug approval, because anytime a plaintiff could -- who
16:17:17 is a parent and has a child who wants some sort of drug that the FDA has decided is still experimental at this point, and it is not -- if the FDA has not decided yet whether the risks outweigh the benefits, or vice versa, the child would have no right to the drug, the parent would have no right to the drug
16:17:37 for the parent's use, but the parent would have a right to get it for their child.

But, of course, during the last two years of the pandemic as the FDA was considering the safety and efficacy of the COVID vaccine, there was no substantive due process right for a
16:17:53 parent to cut in line and sue and say, I think this is going to be really helpful for my kid. My kid is immunocompromised. They really, really need it.

That was not -- it's not a Fourteenth Amendment issue. There was not a right. Because what they have done is the same
16:18:08 thing the Eleventh Circuit has rejected expressly in the Morrissey case, which we discussed at opening.

They have defined the right with broad generality, a broad right to provide medical -- to basically care for your child.

But as the Eleventh Circuit and the Supreme Court have
16:18:28 recognized, when we're dealing with substantive due process to

the extent that's even a thing, you need to really describe the right with great specificity, and then root it in the history and traditions of our nation.

And there is no deeply-rooted right in the history and traditions of America that guarantees a parent the right to puberty blockers or cross-sex hormones for their child, particularly when the state of science is so uncertain.

If the plaintiffs are right, that this is a strict scrutiny case, then federal judges are going to become medical boards that are going to be adjudicating issue after issue after issue. And it is going to be difficult to imagine what sort of medical judgment is going to be available, what sort of medical judgment a state could still exercise, at least when it comes to parents desiring the drugs for their children.

So, I mean, turning to some of the facts, I mean, for years, rates of gender dysphoria in youth had remained stable, as did the patient profile which was typically male. And for years, the standard treatment for gender dysphoria was watchful waiting.

And that is not nothing, as Mr. Doss suggested. That is careful therapy with other types of mental health support to help relieve children's distress as they explored their still forming identities. The sort of thing that would have been very helpful to Ms. Wright, who you heard from earlier today, but instead received the fast-track approach.

Now, all that has changed, and quite dramatically and quite quickly. If you look at Defendants' Exhibit 7 at page 26, there is a very telling chart showing the increase in young people seeking treatment in gender clinics in the UK and Australia from 2010 to 2020. I mean, that data is particularly useful because they have national health-care systems that track all of these patients; whereas, we have a more disaggregated system in the U.S., where a plaintiff -- not a plaintiff -- a patient might go to a clinic and then later never show up again, and you lose track of them.

So, if anything, the fact that some of these studies are coming up out of Europe suggest that they should be given more weight because they just have better data on the people.

If you look also at Defense Exhibit 7 at page 31, that is two maps. That's the chart, the explosion of gender clinics in the last 15 years. So as of 15 years ago, there were two clinics in the entire country.

Now we're into the 50s or 60s. UAB is only seven years old. And, of course, we have heard a lot about UAB, but they're not the only place in Alabama where you can receive these sorts of drugs.

Ms. Wright had a different situation in Georgia. But I mean, really any doctor with a script could potentially write for some of these -- for some of these drugs, and there could be other clinics in the future that open up.

And in light of this new evidence, many countries are waking up to the grave uncertainty and the risks that this new approach to treating gender dysphoria has for youth.

You heard from leaders from two of the prominent gender clinics, Dr. Hawkins and Dr. Ladinsky. Neither of them had substantial familiarity with the careful assessments and conclusions reached by these progressive nations.

Hawkins transcript page 39, 1 through 4 said, Are you generally aware of it? Response to one of these studies? And she said she was not.

Dr. Ladinsky stated at page 124 through 125, I confess that I am not intimately associated with the position statements of other nations.

But listen to what Sweden had to say. Quote, For adolescents with gender incongruence, the board deems that the risk of puberty-suppressing treatments with puberty blockers and gender-affirming hormonal treatment currently outweigh the possible benefits. And the statement further emphasized both, quote, the continued lack of reliable scientific evidence concerning the efficacy and the safety of both treatments and the, quote, new knowledge that detransition occurs among young adults. It's Defense Exhibit 11 at page 3.

Similarly, the UK's review went through all of these studies, unlike the AAP's review that the plaintiffs have relied on. Their conclusion was again, quote, Any potential

benefits of gender-affirming hormones must be weighed against the largely unknown long-term safety profile of these treatments in children and adolescents with gender dysphoria.

And that same review found only five uncontrolled observational studies suggesting any benefit, and it graded those studies as, quote, a very low certainty, closed quote. In other words, medical uncertainty. It's Defense Exhibit 10 at page 14.

And, again, I implore the Court to look again to the appendix to Dr. Cantor's declaration where he has devastating explanation of all the problems in that AAP report that Dr. Ladinsky, I believe, had referred to.

Finland similarly said that in light of the available evidence, gender reassignment of minors is an experimental practice. It's Defense Exhibit 12 at page 8.

In France, they said, quote, there is no test to distinguish a structural gender dysphoria from transient dysphoria in adolescents. And because, quote, the risk of overdiagnosis is real, closed quote, treatment should consist only of, quote, psychological support as long as possible for children and adolescents expressing a desire to transition, closed quote. That's Defense Exhibit 13 at 2.

France even went on to emphasize, quote, the addictive character of excessive consultation on social networks as harmful to the psychological development of young people and

responsible for a very important part of the growing sense of gender incongruence. It's not just the French.

We had Ms. Wright here talking about going on Instagram, seeing these images, learning these things, and it, in turn, causing her to feel this dysphoria that she mistook for transgender status with great consequences for her personally.

16:24:48

So the evidence -- what WPATH itself has said shows that desistance rates are between 50 and 90 percent. That's Defense Exhibit 18, page 11.

16:25:10

Now, Dr. Hawkins, of course, said that unlike any other gender clinic this history they are, quote, exceptional at identifying who is, in her words, truly transgender. That is whose gender dysphoria is going to persist. But they don't have studies to back up this newfound certainty.

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When asked to respond to evidence that only 25 percent of detransitioners tell their doctors that they have detransitioned, they said that they had read the study, but hadn't noticed that finding. That's Hawkins transcript page 53 through 54.

16:25:41

And I will try to make sure I'm moving quickly, Your Honor. I do want to get into some of the legal issues.

But, I mean, I think it's important that even if plaintiffs could guarantee whose gender dysphoria is likely to persist, there is still great uncertainty about whether these treatments even provide long-term benefits.

16:25:59

On the other hand, the risks are potentially quite severe. Recall Plaintiffs' Exhibit 41. This is the informed consent form from UAB. It detailed numerous risks, including heart disease, liver disease, blood disorders, loss of sexual function, and sterility.

And there are still other risks that are unknown because the long-term consequences of using puberty blockers and then cross-sex hormones such that a child never goes through natural puberty has simply not been studied with any rigor.

16:26:34 So in light of this uncertainty, how could plaintiffs possibly -- or how could -- yeah. How could plaintiffs possibly obtain informed consent from either children or from their parents?

The plaintiffs couldn't even explain the difference between the refusal to take consent for a mastectomy or a female circumcision for that matter, and their willingness to take consent for cross-sex hormones that they agree can cause equally, quote, permanent irreversible damage to basic reproductive function. That was Dr. Ladinsky's testimony, pages 133 through 136.

And you also heard from Dr. Antommaria that he does think that some young people could consent to mastectomy. So even some uncertainty and some conflict between the different witnesses that the plaintiffs have presented.

And worse still, even if puberty blockers and cross-sex

hormones would help -- and it's not clear that they do help -- because we can't know if a child is likely to persist, we really are in a situation like the hypothetical RSV vaccine that was discussed with Dr. Koe that would sterilize 5 percent of its recipients. That treatment would never be approved by the FDA, and Dr. Koe testified quite rightly she would never recommend to that her patients. The risks are just too great. In other words, it would be banned.

And here we have sterilizing treatments with far less guarantee of any sort of benefit at the end of the day.

So turning to the Arkansas order. I think this will be a good framework for addressing some of the legal issues, and I will try to thread some of the key facts, as well.

I am going to get to Equal Protection. I will also address Glenn, Bostock, and Grimm.

So first, at the beginning, there are statutory differences between the Arkansas law and the Alabama law. We think the Arkansas law is perfectly constitutional. That case, of course, is up on appeal at the Eighth Circuit. We would recommend Arkansas's briefing to the Court because it can explain in greater detail some of the problems with the Brandt decision.

For one thing, the Arkansas law lacks extensive legislative findings that support SB 184.

Second, our law is narrower because there is no provision

that expressly bans referrals.

Third, Alabama's law also expressly leaves open psychotherapy as a treatment for gender dysphoria.

And fourth, our law more specifically defines the treatments that are barred by the law.

But turning to the opinion, first heightened scrutiny. The Brandt decision said the transgender people constitute at least a quasi-suspect class.

What the Court did not do is cite any evidence to back that up. They have said in Grimm, and that was it. Contrast that with the last time the Supreme Court had before it the occasion to determine whether there was a new quasi-suspect class, that's the Cleburne case, 1985.

I particularly recommend the Fifth Circuit's opinion that was facially -- or at least the releasing of which was reversed by the Supreme Court. There the Fifth Circuit had a great amount of record evidence of the discrimination against intellectually disabled people from the '80s and going back.

Such robust evidence that Justice Thurgood Marshall, who would have concluded that the intellectually disabled were a quasi-suspect class, stated that in his view, quote, the mentally retarded were, in 1985, a group that suffered eugenic marriage and sterilization laws and whose treatment paralleled the worst excesses of Jim Crow. That was the record.

And even then, the Supreme Court said, this is not a

quasi-suspect class. We are not going to take that very dramatic step in designating a new quasi-suspect class.

So plaintiffs have submitted substantially no evidence to try to back up their claim that there's a quasi-suspect class here. I think for that reason, they have not made that showing, and the Brandt Court -- I have not looked all the evidence that was in front of the Brandt Court, but I know the analysis is incredibly thin. That would be one grounds to distinguish.

Next, the Court applied heightened scrutiny, because assuming there was suspect class, the Court held that the -- Arkansas's law, quote, refers to gender transition which is only sought by transgender individuals, closed quote.

Now, that's wrong as both a legal matter and a factual matter. And I mean, I think the facts that we have established here also clearly distinguish that decision from this case.

But first on the law, we've discussed it. We've briefed it extensively. The Supreme Court's 1974 decision in Geduldig, that was a case where California covered many medical treatments, did not cover pregnancy, however, in their state insurance plan.

A group of women sued saying this is discrimination on the basis of sex because only women can get pregnant. And the Supreme Court said this is not discrimination on the basis of sex, because there are two categories here -- people who are

pregnant and people who are not pregnant. While it's only women in the people who are pregnant category, there are men and women in the people who are not pregnant category. Therefore, not discrimination on the basis of sex.

16:32:03 Now, we can do you one better in this case, Your Honor, because there are certainly -- it's undisputed, there are people who are transgender who do not seek these treatments. And so in that category of people who don't seek these treatments are both transgender and nontransgender persons.

16:32:20 But then unlike in Geduldig, in the other category, there are also transgender persons and nontransgender persons who are in that category.

Dr. Ladinsky testified that at 106, lines 3 through 8, that some of her patients did start puberty blockers, but later

16:32:36 stopped and had their gender identity agree with their biological sex.

So -- and Dr. Hawkins's -- in the phrasing of Dr. Hawkins, these patients would not be, quote, truly transgender. Thus, as plaintiffs agree, not every person who is diagnosed with

16:32:55 gender dysphoria is transgender, and at least some people who are not transgender receive puberty blockers and cross-sex hormones. Indeed you heard from one such person today, Ms. Wright.

Justifications for the law. The Brandt Court said that,

16:33:14 quote, defendants state that the Arkansas general assembly

passed Act 626 in response to a recent judicial ruling of the UK High Court of Justice of England and Wales and in Arizona District Court. And then the Brandt Court found that neither of these authorities were persuasive or precedential.

16:33:37 In contrast, as I mentioned earlier, we have extensive legislative findings backing up our law. This was not simply hereto interesting Court decisions. Let's go ahead and enact this new law.

Then the Court further found that the reliance on the UK 16:33:53 court's ruling was not credible because the State allows the, quote, same treatment for cisgender minors as long as the desired results conform with the stereotype of their biological sex.

Now, I don't know all the evidence that was before the 16:34:08 Brandt Court, but on our record here, we have shown that puberty blockers for precocious puberty is not the same treatment as puberty blockers for gender dysphoria. I mean, that's the whole premise of the FDA having on-label and off-label distinctions. They're different treatments, even if 16:34:25 similar medications might be used.

So here -- I mean, in the context of hormones, giving a certain dose of testosterone to a boy with a measurable hormone deficiency to bring him up to normal range is not the same treatment as giving the same dose of testosterone to a 16:34:42 biological female to bring her levels up to a range that would

be abnormally high for females.

As our endocrinologist Dr. Laidlaw explained at Defendants' Exhibit 3, pages 3 through 5, that first type of treatment involves an endocrine diagnosis rooted in objective testing of hormone levels.

In contrast, a gender dysphoria is a psychological diagnosis. The fact the treatment for one might bear some passing resemblance to treatment for the other does not make them the same treatment.

And further, as discussed in treating gender dysphoria with hormones carries unique and serious risks, including many of those risks listed on the informed consent form from UAB and that are outlined by Dr. Laidlaw on pages 17 through 19 of his report.

Dr. Ladinsky herself appeared to recognize this fact when she was asked about two hypothetical boys. As you might recall, one of them had low testosterone and was -- needed some testosterone to get up to normal levels. The other had normal testosterone and wanted more to get to abnormally high levels so he could build more muscle mass. She agreed on page 143 of the transcript that those would be altogether different treatments.

A fortiori, when one child is given puberty blockers or hormones for an endocrine disorder, to move them into a normal range for their age and sex, that is an altogether different

treatment than using similar doses of those drugs to treat a psychological disorder and move them into abnormal ranges. It's simply not the same.

Dr. Koe basically confirmed the same thing on pages 185 and 186 of the transcript from yesterday. She stated that she performed testicular exams only on males, but not on females. And when she's treating transgender males for gender dysphoria, she would give them testosterone, but she would not treat a transgender female for gender dysphoria with testosterone.

She was asked, Are you discriminating based on sex? And she said no. She was, quote, giving each patient the care for which their sex and gender requires. It's not discrimination to recognize biological realities that you must recognize to perform medicines.

For the same reasons, Alabama doesn't discriminate because of sex. This also helps illustrate why our case is much different from Glenn vs. Brumby, Bostock, or Grimm, for that matter.

To greatly simplify the Glenn, the Bostock cases, I think a similar analysis would apply to Grimm, although Grimm was a bathroom case and not an employment case. In both Glenn and Bostock, there was a biological male who was fired because he wanted to show up at work presenting as a woman. Even though men and women are both able to wear dresses, only the man would lose his job for wearing one to work.

But here there is no way to provide a testicular exam to females. It would be a different treatment altogether. And prescribing testosterone to a boy to get his levels up to a normal boy's levels cannot be done for a girl, because she is a girl and not a boy. It would be a different treatment altogether.

Second, Bostock and Brumby were premised on the notion that sex is irrelevant to employment decisions. But sex is obviously relevant to medical decisions. Dr. Koe confirmed as much. Dr. Ladinsky confirmed as much.

So either there is no discrimination here, or if there is some sort of discrimination, although the Court has said in the Nyugen decision that recognizing biological realities is not a stereotype, like a law could not be more tailored. Like you have to know the sex to know what the treatment even is. The fit could not be tighter.

So moving on. The Brandt Court found that Arkansas's law was not substantially related to the regulation of ethics of the medical profession because gender-affirming treatment is supported by medical evidence that has been subject to rigorous study.

Now, the record before Your Honor shows that these statements are simply not accurate, at least on the record here in Alabama. The one certainty in this field is that there is no certainty. There are not rigorous studies, and we have

presented ample evidence of medical uncertainty.

The Brandt Court did not address similar issues. They did not address the Gonzales decision. They did not address the European reviews. They didn't recognize the weakness of the evidence for these interventions.

16:39:33

The Court also said, quote, Every major expert medical association recognizes that gender-affirming care for transgender minors may be medically appropriate and necessary.

The Court, of course, never addressed the international literature reviews.

16:39:49

And another key distinction, Your Honor, not -- some of these weren't even available at the time the Court was ruling on August 2nd, 2021. There's been more evidence coming to light. As Dr. Cantor said, to the extent the pendulum is swinging, it is swinging in Alabama's direction.

16:40:03

Turning again to substantive due process, which I addressed at the beginning, the Brandt Court I think made some of the same errors that the plaintiffs are making here finding that the plaintiffs in that case had a fundamental right to seek medical care for their children and in conjunction with their adolescent child's consent and their doctor's recommendation make a judgment that medical care is necessary.

16:40:21

Of course, that, again, defines the right far too broadly and misstates the right. And the Court never identified a history or tradition of that particular right, and similarly

16:40:41

ignored the implications of the new right. For example, every FDA decision would be subject to strict scrutiny.

Turning to the First Amendment, Brandt -- there was a First Amendment claim in Brandt that the claim there centered on the physician referral provision, which we do not have one of those in Alabama's law.

Now, finally, one thing -- another big thing I think that distinguishes our case from Brandt -- an issue we have with the Court's decision, it never once mentioned the risks of these procedures for kids. You will not see them mentioned at all. Not a word about bone health, not a word about heart disease, blood disorders, sexual disorders, or infertility. Not a word about a young women like Sydney Wright and the 13 other declarants who are either detransitioners or the parents of troubled youth, like not a word about any of them. And these people are suffering from having been experimented on.

But in this case, Your Honor, you should consider those risks. In this case, the only endocrinologist who has addressed whether treating someone at Tanner Stage 2 will affect fertility is Dr. Laidlaw. This is at page 9 of Defense Exhibit 3, the Laidlaw report. He lays this out.

Awareness of the Tanner stage of the developing adolescent is also useful to assess for maturation of sex organ development leading to fertility.

For girls, menstruation and ovulation occurs about

two years after Tanner Stage 2, and will typically be at Tanner Stage 4 or possibly 3. For boys, the first appearance of sperm is typically Tanner Stage 4. If puberty is blocked before reaching these critical stages, the sex glands will be locked in a premature state and incapable of fertility. His similar statements addressing the problems of sexual dysfunction that come from these treatments.

16:42:35

In contrast, you heard from Dr. Antommaria today. It is his view that clinics don't need to tell patients and families that puberty blockers will almost certainly lead to cross-sex hormones before kids are started on that pathway. That is their standard of care. And these are half truths to create a false consensus with the health and the lives of children on the line.

16:42:55

16:43:09

And to Mr. Doss's assertion, there is no evidence of lax methods in the U.S. They are completely ignoring the 14 declarations from -- and the testimony of Ms. Wright, for that matter.

There is plenty of evidence of this both in studies and in sworn declarations. There will be more and more of this unless states step forward and protect their children, because the medical community is not doing their job.

16:43:27

Now, addressing vagueness. We touched on it briefly. Again, the key language is, quote, no person shall engage in or cause, prescribing, or administering puberty-blocking

16:43:46

medication to stop or delay normal puberty. Of course, the cross-sex hormones provision that follows after that.

Here's how it works. If a doctor writes a prescription for puberty blockers, that would be engaging in prescribing the puberty blockers. If the doctor orders the nurse practitioner at the clinic to write the prescription, the doctor would be causing the prescription of the puberty-blocking medication.

Similarly, if the doctor gave a shot of testosterone for purposes of gender transition, she would be administering. If she ordered the nurse to do it, she would be causing.

But if a patient merely posted on Facebook that she had a great experience at the clinic, she would not be engaging in or causing the prescription of puberty blockers, even if a friend read the testimony or reached out to the clinic and later got it.

If Reverend Eknes-Tucker tells a congregant that she might receive help for her gender dysphoria at the clinic, he hasn't engaged in or caused the prescribing or administration of anything.

And if a parent merely drives his child to the clinic, he hasn't engaged in or caused the prescription of any drugs.

Now, if the parent injects the medications, I think he probably has engaged in the administering the puberty blockers. But merely driving him to the clinic, having conversations with their child, being there for them, that is not administering,

engaging in, or causing the administration of these drugs.

And, Your Honor, I think that's why Reverend Eknes-Tucker wasn't ready to go and file a lawsuit on April 8th like Dr. Ladinsky or Mr. Jeff Walker were. He didn't think that this law applied to him. But when he got a call on Monday, April 16th, from one of Dr. Ladinsky's lawyers, he was excited to -- I believe his phrase -- was make a difference.

But as we discussed earlier today, the good news and the bad news for Mr. Eknes-Tucker is that while he did help SBLC and Lightfoot get back into court, and his conduct does not violate the law, so he doesn't have to worry about that, the bad news is he likely doesn't have standing to be challenging this law. So he's going to have to make a difference some other way going forward.

Now, one thing to equities I want to address. Dr. Ladinsky stated that she would be concerned that if SB 184 goes into effect, her patients --

THE COURT: I will say I think you have kind of run through your time, but I was easy with Mr. Doss. I will be with you. But I would say we are close to wrapping it up.

MR. LACOUR: Very, very close, Your Honor. I am ready to go home myself. But I appreciate all of the time and consideration you have given to this very important case.

I will just say, Dr. Ladinsky was -- stated she was concerned that if SB 184 went into effect, her patients would

have to stop taking testosterone cold turkey.

Now, going back to language of the statute -- and this is something I have tried to emphasize in the cross-examination -- it says, do not engage in or cause the following practices for the purpose of attempting to in effect cause a gender transition.

Being responsible and tapering somebody off of these artificial hormones is not for the -- would not be using the hormones for that prohibited purpose. Just like using testosterone for that boy with the low T to get him up to a normal range is not an improper purpose, either. So we don't think that's something that anyone needs to worry about.

Now, in closing, Mr. Doss suggested that SB 184 is somehow a grand experiment. Now, with all due respect, I mean, there were only two of these clinics in 2007. UAB has only been on the scene for seven years.

In hitting the pause button, Alabama is halting an experiment on our kids, and nothing in the Constitution or federal law requires Alabama to expose children to these unproven and sterilizing treatments. For that reason, the preliminary injunction motions should be denied.

If you have any questions, I would be happy to answer them. Otherwise, we rest.

THE COURT: All right. I thank you all for your arguments. Let's talk housekeeping just for a minute.

Obviously, in the long term, we have got to put together a discovery plan and a trial track. Have the parties talked about that?

MR. LACOUR: We have not yet, Your Honor.

16:48:15 THE COURT: Do you want to give me your 30-second idea of how long you think how long a track this should be on? My guess is it should be expedited.

MR. LACOUR: Your Honor, there is a fair amount of discovery we think we would like to get, including some 16:48:31 third-party discovery. Plaintiffs have put at issue the credibility of the AAP, some of these other organizations. We have some questions about donations that the Endocrine Society might be receiving from the prescription drug manufacturers who are profiting off of this use of their puberty blockers and 16:48:49 their cross-sex hormones. That might be relevant assessing the credibility of these institutions.

I mean, we will certainly move with all deliberate speed, but we would want a chance to fully develop the record.

THE COURT: So give me a number.

16:49:06 MR. LACOUR: My colleague Mr. Davis is usually a little better at this. I'm just a humble appellate attorney.

THE COURT: All right.

MR. DAVIS: Mr. LaCour's welcome to correct me, but before we -- we would like the chance to confer about that. We 16:49:18 have been so focused on getting ready for this hearing --

THE COURT: I get that.

MR. DAVIS: -- we really haven't thought about what all we want to do. If we could have until the first of the week to talk about it amongst ourselves and let Your Honor know what our thoughts are.

16:49:29

THE COURT: Maybe you can confer with the plaintiffs and y'all can present a joint thought on that.

MR. DAVIS: I think we could be ready for like a Rule 26 conference the first of the week. Give us a chance to talk internally on each side, then with each other, then report to Your Honor by -- well, by middle of the week or end of the week.

16:49:42

THE COURT: Let me say this. Here is all I am trying to accomplish. You know, if we just want to put this on a regular trial track, I will just leave it to y'all, and we will go from there. I was just guessing that somebody might want this to be on an expedited track. And so that's why I am raising the issue.

16:49:55

MR. DOSS: That would be our preference, Your Honor. I mean, our thought just right now would be like maybe a six-month discovery window. I mean, I think we are going --

16:50:09

THE COURT: That was the number in my mind was six months. So, you know, to the extent --

MR. DAVIS: That might be fine with us after we confer.

16:50:23

THE COURT: All right.

MR. DAVIS: But I would like that chance to talk about that specifically.

THE COURT: I get it. No problem. No problem.

16:50:29 I will leave it to the parties to talk. To the extent you agree, great. To the extent you don't agree, we can sort that out.

All right. Thank you for your arguments. All very good. I appreciate every witness that we've had in the last two days.

16:50:47 Thank each of you.

Obviously, this was filed on April the 19th. My staff attorneys and I have done nothing since it was filed but work on this case. We will be doing nothing else but this case until we get an order.

16:51:02 Just like all of you, I want a well-reasoned order that is right on the law. And so I just ask that everybody be patient.

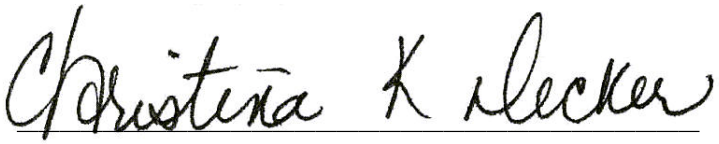
I can't say that it's going to be out tomorrow, or the next day, or the next day, except to say we are not going to work on anything until we get it out and we get it right.

16:51:22 So I thank you all. And we're adjourned.

(Whereupon, the above proceedings were concluded at 4:51 p.m.)

CERTIFICATE

I certify that the foregoing is a correct transcript from the record of proceedings in the above-entitled matter.



05-08-2022

Christina K. Decker, RMR, CRR — Date

Federal Official Court Reporter

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No. 22-11707

UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT

PAUL A. EKNES-TUCKER, et al.,
Plaintiffs-Appellees,

&

UNITED STATES OF AMERICA
Intervenor-Plaintiff-Appellee,

v.

GOVERNOR OF THE STATE OF ALABAMA, et al.,
Defendants-Appellants.

On Appeal from the United States District Court
for the Middle District of Alabama
Case No. 2:22-cv-184-LCB

APPELLANTS' APPENDIX VOLUME XII OF XIII
(FILED UNDER SEAL)

Christopher Mills
SPERO LAW LLC
557 East Bay St.,
#22251
Charleston, SC 29451
(843) 606-0640
cmills@spero.law

Steve Marshall
Attorney General
Edmund G. LaCour Jr.
Solicitor General
A. Barrett Bowdre
Thomas A. Wilson
Deputy Solicitors General
James W. Davis
Deputy Attorney General
Benjamin M. Seiss
Assistant Attorney General
STATE OF ALABAMA
OFFICE OF THE ATTORNEY GENERAL
501 Washington Ave.
Montgomery, AL 36130
(334) 242-7300
Edmund.LaCour@AlabamaAG.gov

July 5, 2022

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Christopher Mills
SPERO LAW LLC
557 East Bay St.,
#22251
Charleston, SC 29451
(843) 606-0640
cmills@spero.law

Steve Marshall
Attorney General
Edmund G. LaCour Jr.
Solicitor General
A. Barrett Bowdre
Thomas A. Wilson
Deputy Solicitors General
James W. Davis
Deputy Attorney General
Benjamin M. Seiss
Assistant Attorney General
STATE OF ALABAMA
OFFICE OF THE ATTORNEY GENERAL
501 Washington Ave.
Montgomery, AL 36130
(334) 242-7300
Edmund.LaCour@AlabamaAG.gov

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UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

PAUL A. EKNES-TUCKER, *et al.*,	)	
	)	
Plaintiffs,	)	
	)	
v.	)	**Case No. 2:22-cv-184-LCB**
	)	
STEVE MARSHALL, *et al.*,	)	
	)	
Defendants.	)	

OPINION & ORDER

Several individuals and the United States challenge the constitutionality of the Alabama Vulnerable Child Compassion and Protection Act.[1] In part, the Act restricts transgender minors from utilizing puberty blockers and hormone therapies. Because the Supreme Court and the Court of Appeals for the Eleventh Circuit have made clear that: (1) parents have a fundamental right to direct the medical care of their children subject to accepted medical standards; and (2) discrimination based on gender-nonconformity equates to sex discrimination, the Court finds that there is a substantial likelihood that Section 4(a)(1)–(3) of the Act is unconstitutional and, thus, enjoins Defendants from enforcing that portion of the Act pending trial. However, all other provisions of the Act remain in effect, specifically: (1) the

[1] Based on their oral representations during a May 4, 2022 hearing, Plaintiffs seek to enjoin only Section 4(a)(1)–(3) of the Act. For purposes of this opinion, all references to "the Act" refer to these subdivisions unless noted otherwise.

provision that bans sex-altering surgeries on minors; (2) the provision prohibiting school officials from keeping certain gender-identity information of children secret from their parents; and (3) the provision that prohibits school officials from encouraging or compelling children to keep certain gender-identity information secret from their parents.

I. BACKGROUND

Regarding a child's belief that they might be transgender, Merriam-Webster's Dictionary defines a "transgender" person as one whose gender identity is different from the sex the person had or was identified as having at birth. *Transgender*, MERRIAM-WEBSTER UNABR. DICTIONARY (3rd ed. 2002). The Dictionary defines "gender identity" as a person's internal sense of being a male or a female. *Gender Identity*, MERRIAM-WEBSTER UNABR. DICTIONARY (3rd ed. 2002). These terms and definitions are largely consistent with those used by the parties. Accordingly, the Court relies on these terms throughout this opinion, but recognizes that they might mean different things to different people and in different contexts.

According to the uncontradicted record evidence, some transgender minors suffer from a mental health condition known as gender dysphoria. *Tr.* at 30.[2] Gender dysphoria is a clinically diagnosed incongruence between one's gender identity and

[2] "*Tr.*" is a consecutively paginated transcript of the two-day preliminary injunction hearing the Court held on May 5–6, 2022. For clarity, the Court cites to the internal pagination of the transcript rather than the ECF pagination.

assigned gender. *DSM-5* (Doc. 69-17) at 4. If untreated, gender dysphoria may cause or lead to anxiety, depression, eating disorders, substance abuse, self-harm, and suicide. *Tr.* at 20. According to the World Professional Association for Transgender Health (WPATH), an organization whose mission is to promote education and research about transgender healthcare, gender dysphoria in adolescents (minors twelve and over) is more likely to persist into adulthood than gender dysphoria in children (minors under twelve). *WPATH Standards of Care* (Doc. 69-18) at 17.[3]

In some cases, physicians treat gender dysphoria in minors with a family of medications known as GnRH agonists, commonly referred to as puberty blockers. *Id.* at 24; *Tr.* at 103. After a minor has been on puberty blockers for one to three years, doctors may then use hormone therapies to masculinize or feminize his or her body. *Tr.* at 108–11, 131. The primary effect of these treatments is to delay physical maturation, allowing transgender minors to socially transition their gender while they await adulthood. *Id.* at 105–06, 110–11. For clarity and conciseness, the Court refers to puberty blockers and hormone therapies used for these purposes as "transitioning medications."

Like all medications, transitioning medications come with risks. *Tr.* at 121–22. Known risks, for example, include loss of fertility and sexual function. *Id.*

[3] Plaintiffs, the State, and the United States individually introduced the WPATH standards into evidence during the May 5–6 preliminary injunction hearing.

at 132–33. Nevertheless, WPATH recognizes transitioning medications as established medical treatments and publishes a set of guidelines for treating gender dysphoria in minors with these medications. *WPATH Standards of Care* (Doc. 69-18) at 19. The American Medical Association, the American Pediatric Society, the American Psychiatric Association, the Association of American Medical Colleges, and at least eighteen additional major medical associations endorse these guidelines as evidence-based methods for treating gender dysphoria in minors. *Tr.* at 97–98; *Healthcare Amici Br.* (Doc. 91-1) at 15.[4]

The Alabama Vulnerable Child Compassion and Protection Act states in pertinent part:

> Section 4. (a) . . . [N]o person shall engage in or cause any of the following practices to be performed upon a minor if the practice is performed for the purpose of attempting to alter the appearance of or affirm the minor's perception of his or her gender or sex, if that appearance or perception is inconsistent with the minor's sex as defined in this act:
>
> > (1) Prescribing or administering puberty blocking medication to stop or delay normal puberty.
> >
> > (2) Prescribing or administering supraphysiologic doses of testosterone or other androgens to females.
> >
> > (3) Prescribing or administering supraphysiologic doses of estrogen to males.

[4] For a full list of the twenty-two major medical associations that endorse these guidelines, see *infra* note 12.

> (4) Performing surgeries that sterilize, including castration, vasectomy, hysterectomy, oophorectomy, orchiectomy, and penectomy.
>
> (5) Performing surgeries that artificially construct tissue with the appearance of genitalia that differs from the individual's sex, including metoidioplasty, phalloplasty, and vaginoplasty.
>
> (6) Removing any healthy or non-diseased body part or tissue, except for a male circumcision.

. . .

(c) A violation of this section is a Class C felony.

Section 5. No nurse, counselor, teacher, principal, or other administrative official at a public or private school attended by a minor shall do either of the following:

> (1) Encourage or coerce a minor to withhold from the minor's parent or legal guardian the fact that the minor's perception of his or her gender or sex is inconsistent with the minor's sex.
>
> (2) Withhold from a minor's parent or legal guardian information related to a minor's perception that his or her gender or sex is inconsistent with his or her sex.

S.B. 184, ALA. 2022 REG. SESS. §§ 4–5 (Ala. 2022). The Act defines a "minor" as anyone under the age of nineteen. *Id.* § 3(1); ALA. CODE § 43-8-1(18). The Act defines "sex" as "[t]he biological state of being male or female, based on the individual's sex organs, chromosomes, and endogenous hormone profiles." S.B. 184, ALA. 2022 REG. SESS. § 3(3) (Ala. 2022).

In support of these prohibitions, the Legislature made several legislative findings. *Id.* § 2. The Legislature found in part that "[s]ome in the medical community are aggressively pushing" minors to take transitioning medications, which the Act describes as "unproven, poorly studied . . . interventions" that cause "numerous harmful effects for minors, as well as risks of effects simply unknown due to the new and experimental nature of these interventions." *Id.* § 2(6), (11). The Legislature went on to find that "[m]inors, and often their parents, are unable to comprehend and fully appreciate the risk and life implications" of these treatments. *Id.* § 2(15). Thus, the Legislature concluded, "the decision to pursue" these treatments "should not be presented to or determined for minors[.]" *Id.* § 2(16).

Alabama legislators passed the Act on April 7, 2022.[5] Governor Kay Ivey signed the Act into law the following day.[6] In the week that followed, civil rights groups filed two lawsuits challenging the Act's constitutionality.[7] In *Ladinsky v. Ivey*, Case No. 2:22-cv-447 (N.D. Ala. 2022), several plaintiffs challenged the Act in the United States District Court of the Northern District of Alabama. The case

[5] Jo Yurcaba, *Alabama Passes Bills to Target Trans Minors and LGBTQ Classroom Discussion*, NBCNEWS.COM (Apr. 7, 2022, 4:22 PM), https://www.nbcnews.com/nbc-out/out-politics-and-policy/alabama-passes-bills-targeting-trans-minors-lgbtq-classroom-discussion-rcna23444.

[6] Madeleine Carlisle, *Alabama's Wave of Anti-LGBTQ Legislation Could Have National Consequences*, TIME.COM (Apr. 15, 2022, 11:40 AM), https://time.com/6167472/alabama-anti-lgbtq-legislation/.

[7] *Alabama Law Banning Transgender Medication Challenged in Two Lawsuits*, CBSNEWS.COM (Apr. 11, 2022, 10:05 PM), https://www.cbsnews.com/news/alabama-transgender-law-lawsuits/.

was randomly assigned to United States District Judge Anna M. Manasco. Judge Manasco recused, and the case was randomly reassigned to United States Magistrate Judge Staci G. Cornelius. After the parties declined to proceed before Judge Cornelius in accordance with 28 U.S.C. § 636(c), the case was randomly reassigned to the Honorable Annemarie C. Axon.

With *Ladinsky* pending, a separate set of plaintiffs challenged the Act in the United States District Court of the Middle District of Alabama. That case, styled *Walker v. Marshall*, Case No. 2:22-cv-167 (M.D. Ala. 2022), was randomly assigned to Chief United States District Judge Emily C. Marks. The *Walker* plaintiffs moved to enjoin enforcement of the Act and moved to reassign the case to United States District Judge Myron H. Thompson, alleging that he had previously presided over a similar case. The parties, however, later consented to transferring the case to the Northern District of Alabama for consolidation with *Ladinsky*. At that time, the *Walker* plaintiffs withdrew their motion to reassign.

On April 15, 2022, Chief Judge Marks transferred *Walker* to the Northern District of Alabama in accordance with the "first-filed" rule and 28 U.S.C. § 1404(a). The case was randomly assigned to this Court. Judge Axon then transferred *Ladinsky* to this Court for consolidation with *Walker*. That same day, at 6:24 p.m. CDT, the *Walker* plaintiffs filed a notice of voluntary dismissal without prejudice under Federal Rule of Civil Procedure 41(a)(1)(A)(i). The *Ladinsky* plaintiffs voluntarily

dismissed their case nine minutes later. Neither the *Walker* plaintiffs nor the *Ladinsky* plaintiffs explained their respective dismissals, but counsel for *Ladinsky* informed the press: "We do plan to refile imminently[.]"[8]

Sure enough, on April 19, four transgender minors (Minor Plaintiffs), their parents (Parent Plaintiffs), a child psychologist and a pediatrician (Healthcare Plaintiffs), and Reverend Paul A. Eknes-Tucker filed this suit in the United States District Court of the Middle District of Alabama and moved to enjoin the Act's enforcement pending trial. The case was randomly assigned to United States District Judge R. Austin Huffaker, Jr. Due to this Court's familiarity with *Ladinsky* and *Walker*, Judge Huffaker reassigned the case to this Court to expedite disposition of Plaintiffs' motion for preliminary injunction. With the Act set to take effect on May 8, the Court entered an abbreviated briefing schedule and set a hearing on Plaintiffs' motion for May 5–6.

Just days before the hearing, the United States moved to intervene on behalf of Plaintiffs under Federal Rule of Civil Procedure 24.[9] In the process, the United States filed its own motion to enjoin enforcement of the Act and requested to

[8] Paul Gattis, *Lawsuits Seeking to Overturn New Alabama Transgender Law Dropped, Could be Refiled*, AL.COM, https://www.al.com/news/2022/04/lawsuits-seeking-to-overturn-new-alabama-transgender-law-dropped-could-be-refiled.html (last updated Apr. 16, 2022, 9:22 PM).

[9] The United States's amended intervenor complaint does not add any additional claims, name any new defendants, or seek to expand the relief sought by Plaintiffs. *Compare Am. Intervenor Compl.* (Doc. 92) at 4–5, 13–14, *with Compl.* (Doc. 1) at 6–8, 28–35.

participate in the preliminary injunction hearing. Additionally, fifteen states moved for leave to proceed as *amici curiae*[10] and to file a brief in support of Defendants.[11] Twenty-two healthcare organizations also moved for leave to proceed as *amici curiae* and to file a brief in support of Plaintiffs.[12] Ultimately, the Court granted these motions in full, took the *amici* briefs under advisement, and gave the United States leave to participate during the preliminary injunction hearing.

During that hearing, the parties submitted hundreds of pages of medical evidence and called several live witnesses. Plaintiffs tendered Dr. Linda Hawkins and Dr. Morissa Ladinsky as experts in the treatment of gender dysphoria in minors. *Tr.* at 16, 92. Dr. Hawkins and Dr. Ladinsky testified that at least twenty-two major

[10] *Amici curiae*, Latin for "friends of the court," refers to a group of people or institutions who are not parties to a lawsuit, but petition the court (or are requested by the court) to file a brief in the action because they have "a strong interest in the subject matter." *Amicus Curiae*, BLACK'S LAW DICTIONARY (11th ed. 2019).

[11] The State *Amici* are the States of Arkansas, Alaska, Arizona, Georgia, Indiana, Louisiana, Mississippi, Missouri, Montana, Nebraska, Oklahoma, South Carolina, Texas, Utah, and West Virginia.

[12] The Healthcare *Amici* are the American Academy of Pediatrics; the Alabama Chapter of the American Academy of Pediatrics; the Academic Pediatric Association; the American Academy of Child and Adolescent Psychiatry; the American Academy of Family Physicians; the American Academy of Nursing; the American Association of Physicians for Human Rights, Inc. *d/b/a* Health Professionals Advancing LGBTQ Equality; the American College of Obstetricians and Gynecologists; the American College of Osteopathic Pediatricians; the American College of Physicians; the American Medical Association; the American Pediatric Society; the American Psychiatric Association; the Association of American Medical Colleges; the Association of Medical School Pediatric Department Chairs; the Endocrine Society; the National Association of Pediatric Nurse Practitioners; the Pediatric Endocrine Society; the Society for Adolescent Health and Medicine; the Society for Pediatric Research; the Society of Pediatric Nurses; the Societies for Pediatric Urology; and the World Professional Association for Transgender Health.

medical associations in the United States endorse transitioning medications as well-established, evidence-based methods for treating gender dysphoria in minors. *Id.* at 25, 97–98, 126–27. They opined that there are risks associated with transitioning medications, but that the benefits of treating minors with these medications outweigh these risks in certain cases. *Id.* at 57–58, 121–22, 136, 170. They also explained that minors and their parents undergo a thorough screening process and give informed consent before any treatment regimen begins. *Id.* at 41, 59, 132; *see also Consent Form* (Doc. 78-41) at 1–14. Finally, they testified that, without these medications, minors with gender dysphoria suffer significant deterioration in their familial relationships and educational performance. *Tr.* at 35, 112–13.

Plaintiffs also called Healthcare Plaintiff Dr. Rachel Koe (a licensed pediatrician), Plaintiff Eknes-Tucker, and Parent Plaintiff Megan Poe to testify about their personal knowledge and experiences regarding the treatment of gender dysphoria in minors. *Id.* at 150–51, 170–71, 195. Parent Plaintiff Megan Poe specifically described the positive effects transitioning treatments have had on her fifteen-year-old transgender daughter, Minor Plaintiff Allison Poe. *Id.* at 157–68.

According to Megan, Allison was born a male, but has shown evidence of identifying as a female since she was two-years-old. *Id.* at 153–54. During her early adolescent years, Allisson suffered from severe depression and suicidality due to gender dysphoria. *Id.* at 156–57. She began taking transitioning medications at the

end of her sixth-grade year, and her health significantly improved as a result. *Id.* at 163. Megan explained that the medications have had no adverse effects on Allison and that Allison is now happy and "thriving." *Id.* at 166–67. When asked what would occur if her daughter stopped taking the medications, Megan responded that she feared her daughter would commit suicide. *Id.* at 167.

Intervening on behalf of Plaintiffs, the United States tendered Dr. Armand H. Antommaria as an expert in bioethics and treatment protocols for adolescents suffering from gender dysphoria. *Id.* at 213–26. He reiterated that transitioning medications are well-established, evidence-based methods for treating gender dysphoria in minors. *Id.* at 120–21.

Defendants called two witnesses. *Id.* at 253, 337. First, Defendants tendered Dr. James Cantor—a private psychologist in Toronto, Canada—to testify as an expert on psychology, human sexuality, research methodology, and the state of the research literature on gender dysphoria and its treatment. *Id.* at 253–54. Dr. Cantor opined that, due to the risks of transitioning medications, doctors should use a "watchful waiting" approach to treat gender dysphoria in minors. *Id.* at 281. That approach, according to Dr. Cantor, "refers specifically to withholding any decision about medical interventions until [doctors] have a better idea or feel more confident" that the minor's gender dysphoria will persist without medical intervention other than counseling. *Id.* Dr. Cantor further testified that several European countries have

restricted treating minors with transitioning medications due to growing concern about the medications' risks. *Id.* at 296–97.

On cross examination, however, Dr. Cantor admitted that: (1) his patients are, on average, thirty years old; (2) he had never provided care to a transgender minor under the age of sixteen; (3) he had never diagnosed a child or adolescent with gender dysphoria; (4) he had never treated a child or adolescent for gender dysphoria; (5) he had no personal experience monitoring patients receiving transitioning medications; and (6) he had no personal knowledge of the assessments or treatment methodologies used at any Alabama gender clinic. *Id.* at 306–09. Accordingly, the Court gave his testimony regarding the treatment of gender dysphoria in minors very little weight. Dr. Cantor also testified that no country in Europe (or elsewhere) has categorically banned treating gender dysphoria in minors with transitioning medications. *Id.* at 326–28. Unlike the Act, Dr. Cantor added, those countries allow such treatments under certain circumstances and for research purposes. *Id.* at 327–28.

Defendants' other witness was Sydney Wright, a twenty-three-year-old woman who took hormone therapies for gender dysphoria for roughly a year beginning when she was nineteen. *Id.* at 338, 351, 357. She testified that she now believes taking the medication was a mistake and that she no longer believes gender dysphoria is a legitimate medical diagnosis. *Id.* at 348–49, 355. She also testified

that she received her treatments in Georgia and never visited a gender clinic in Alabama. *Id.* at 359–61.

II. LEGAL STANDARDS

The purpose of a preliminary injunction "is to preserve the positions of the parties" pending trial. *Bloedorn v. Grube*, 631 F.3d 1218, 1229 (11th Cir. 2011). When a federal court preliminarily enjoins a state law passed by duly elected officials, the court effectively overrules a decision "of the people and, thus, in a sense interferes with the processes of democratic government." *Ne. Fla. Chapter of Ass'n of Gen. Contractors of Am. v. City of Jacksonville*, 896 F.2d 1283, 1285 (11th Cir. 1990). This is an extraordinary and drastic remedy. *McDonald's Corp. v. Robertson*, 147 F.3d 1301, 1306 (11th Cir. 1998).

To receive a preliminary injunction, a movant must show that: (1) he or she has a substantial likelihood of success on the merits; (2) he or she will suffer irreparable injury absent injunctive relief; (3) the threatened injury to him or her "outweighs whatever damage the proposed injunction may cause the opposing party; and (4) if issued, the injunction would not be adverse to the public interest." *Siegel v. LePore*, 234 F.3d 1163, 1176 (11th Cir. 2000) (en banc). The movant bears the burden of persuasion on each element. *State of Fla. v. Dep't of Health & Hum. Servs.*, 19 F.4th 1271, 1279 (11th Cir. 2021).

III. DISCUSSION

Plaintiffs and the United States seek to enjoin Section 4(a)(1)–(3) of the Act pending trial under Federal Rule of Civil Procedure 65. *Pls.' Mot.* (Doc. 7) at 2; *Intervenor Pl.'s Mot.* (Doc. 62) at 2. Under this rule, a court may issue a preliminary injunction only after giving notice to the adverse party. FED. R. CIV. P. 65(a)(1). Where injunctive relief is appropriate, the movant must give security "to pay the costs and damages sustained by any party found to have been wrongfully enjoined or restrained." *Id.* at 65(c). Here, Defendants have received proper notice. The Court addresses whether Plaintiffs are entitled to preliminary injunctive relief before turning to the issue of security.

A. Substantial Likelihood of Success on the Merits

The Court first considers whether Plaintiffs are substantially likely to succeed on their claims. When a plaintiff brings multiple claims, a reviewing court must consider the plaintiff's likelihood of success on each claim. *See N. Am. Med. Corp. v. Axiom Worldwide, Inc.*, 522 F.3d 1211, 1226 (11th Cir. 2008). Here, Plaintiffs bring five causes of action: four constitutional claims and one preemption claim. The Court begins with Plaintiffs' constitutional claims.

1. Plaintiffs' Constitutional Claims

Plaintiffs' constitutional claims arise under the Civil Rights Act of 1871, 42 U.S.C. § 1983. *Compl.* (Doc. 1) at 28–30, 33–35. That statute guarantees "a

federal forum for claims of unconstitutional treatment at the hands of state officials[.]" *Heck v. Humphrey*, 512 U.S. 477, 480 (1994). To state a claim under § 1983, a plaintiff must allege: (1) the defendant deprived him of a right secured under federal law or the Constitution; and (2) such deprivation occurred under color of state law. *Richardson v. Johnson*, 598 F.3d 734, 737 (11th Cir. 2010) (per curiam).

Parent Plaintiffs claim that the Act violates their constitutional right to direct the medical care of their children under the Due Process Clause of the Fourteenth Amendment. *Compl.* (Doc. 1) at 28–29. Minor Plaintiffs assert that the Act discriminates against them based on their sex in violation of the Fourteenth Amendment. *Id.* at 29–30. Plaintiffs collectively allege that the Act is void for vagueness under the Fifth and Fourteenth Amendments. *Id.* at 34–35. Finally, Plaintiffs collectively claim that the Act unlawfully restricts their speech under the First Amendment. *Id.* at 33–34. The Court addresses Plaintiffs' claims in that order.

i. Substantive Due Process Claim

Parent Plaintiffs assert that the Act violates their constitutional right to direct the medical care of their children under the Fourteenth Amendment. *Compl.* (Doc. 1) at 28–29.[13] The Due Process Clause provides that no State shall "deprive any person of life, liberty, or property, without due process of law." U.S. CONST. AMEND. XIV.

[13] Based on the record evidence, the Court finds that Parent Plaintiffs have standing to bring their Substantive Due Process Claim. Defendants raise no opposition to this conclusion.

The Clause protects against governmental violations of "certain fundamental rights and liberty interests." *Washington v. Glucksberg*, 521 U.S. 702, 719–20 (1997). Fundamental rights are "those guaranteed by the Bill of Rights as well as certain 'liberty' and privacy interests implicit in the [D]ue [P]rocess [C]lause and the penumbra of constitutional rights." *Doe v. Moore*, 410 F.3d 1337, 1343 (11th Cir. 2005).

A parent's right "to make decisions concerning the care, custody, and control of their children" is one of "the oldest of the fundamental liberty interests" recognized by the Supreme Court. *Troxel v. Granville*, 530 U.S. 57, 65–66 (2000). Encompassed within this right is the more specific right to direct a child's medical care. *See Bendiburg v. Dempsey*, 909 F.2d 463, 470 (11th Cir. 1990) (recognizing "the right of parents to generally make decisions concerning the treatment to be given to their children").[14] Accordingly, parents "retain plenary authority to seek such care for their children, subject to a physician's independent examination and medical judgment." *Parham v. J.R.*, 442 U.S. 584, 604 (1979).

Against this backdrop, Parent Plaintiffs are substantially likely to show that they have a fundamental right to treat their children with transitioning medications subject to medically accepted standards and that the Act infringes on that right. The

[14] *See also PJ ex rel. Jensen v. Wagner*, 603 F.3d 1182, 1197 (10th Cir. 2010) (explaining that "the Due Process Clause provides some level of protection for parents' decisions regarding their children's medical care").

Act prevents Parent Plaintiffs from choosing that course of treatment for their children by criminalizing the use of transitioning medications to treat gender dysphoria in minors, even at the independent recommendation of a licensed pediatrician. Accordingly, Parent Plaintiffs are substantially likely to show that the Act infringes on their fundamental right to treat their children with transitioning medications subject to medically accepted standards.

The State counters that parents have no fundamental right to treat their children with experimental medications. *Defs.' Br.* (Doc. 74) at 120. To be sure, the parental right to autonomy is not limitless; the State may limit the right and intercede on a child's behalf when the child's health or safety is in jeopardy. *Bendiburg*, 909 F.2d at 470. But the fact that a pediatric treatment "involves risks does not automatically transfer the power" to choose that treatment "from the parents to some agency or officer of the state." *Parham*, 442 U.S. at 603.

Defendants produce no credible evidence to show that transitioning medications are "experimental." While Defendants offer some evidence that transitioning medications pose certain risks, the uncontradicted record evidence is that at least twenty-two major medical associations in the United States endorse transitioning medications as well-established, evidence-based treatments for gender dysphoria in minors. *Tr.* at 25, 97–98, 126–27. Indeed, according to Defendants' own expert, no country or state in the world categorically bans their use as Alabama

has. Certainly, the science is quickly evolving and will likely continue to do so. But this is true of almost every medical treatment regimen. Risk alone does not make a medication experimental.

Moreover, the record shows that medical providers have used transitioning medications for decades to treat medical conditions other than gender dysphoria, such as central precocious puberty, a condition in which a child enters puberty at a young age. Doctors have also long used hormone therapies for patients whose natural hormone levels are below normal. Based on the current record, Defendants fail to show that transitioning medications are experimental. Thus, Parent Plaintiffs are substantially likely to show that the Act violates their fundamental right to treat their children with transitioning medications subject to medically accepted standards.

Statutes that infringe on fundamental rights are constitutional only when they satisfy the most demanding standard of judicial review, strict scrutiny. *Williams v. Pryor*, 240 F.3d 944, 947 (11th Cir. 2001). To satisfy strict scrutiny, a statute must be "narrowly tailored" to achieve "a compelling state interest." *Reno v. Flores*, 507 U.S. 292, 302 (1993). The State's interest in "safeguarding the physical and psychological well-being of a minor is a compelling one." *Globe Newspaper Co. v. Superior Ct. for Norfolk Cnty.*, 457 U.S. 596, 607 (1982) (cleaned up).

Defendants proffer that the purpose of the Act is "to protect children from experimental medical procedures," the consequences of which neither they nor their parents often fully appreciate or understand. *Defs.' Br.* (Doc. 74) at 129; *see also* S.B. 184, ALA. 2022 REG. SESS. § 2(13)–(15) (Ala. 2022). Defendants also allege that the Act halts medical associations from "aggressively pushing" transitioning medications on minors. *Defs.' Br.* (Doc. 74) at 114; *see also* S.B. 184, ALA. 2022 REG. SESS. § 2(6) (Ala. 2022).

But as explained above, Defendants fail to produce evidence showing that transitioning medications jeopardize the health and safety of minors suffering from gender dysphoria. Nor do Defendants offer evidence to suggest that healthcare associations are aggressively pushing these medications on minors. Instead, the record shows that at least twenty-two major medical associations in the United States endorse transitioning medications as well-established, evidence-based treatments for gender dysphoria in minors. *Tr.* at 25, 97–98, 126–27. The record also indicates that parents undergo a thorough screening and consent process before they may choose these medications for their children.

Undoubtedly, transitioning medications carry risks. But again, the fact that pediatric medication "involves risks does not automatically transfer the power" to choose that medication "from the parents to some agency or officer of the state." *Parham*, 442 U.S. at 603. Parents, pediatricians, and psychologists—not the State or

this Court—are best qualified to determine whether transitioning medications are in a child's best interest on a case-by-case basis. Defendants' proffered purposes—which amount to speculative, future concerns about the health and safety of unidentified children—are not genuinely compelling justifications based on the record evidence. For this reason alone, the Act cannot survive strict scrutiny at this stage of litigation.

But even if Defendants' proffered purposes are genuinely compelling, the Act is not narrowly tailored to achieve those interests. A narrowly tailored statute employs the "least restrictive means" necessary to achieve its purpose. *Holt v. Hobbs*, 574 U.S. 352, 364 (2015). A statute is not narrowly tailored when "numerous and less-burdensome alternatives" are available to advance the statute's purpose. *FF Cosms. FL, Inc. v. City of Miami Beach*, 866 F.3d 1290, 1299 (11th Cir. 2017). Put differently, "if a less restrictive means is available for the Government to achieve its goals, the Government must use it." *United States v. Playboy Ent. Grp., Inc.*, 529 U.S. 803, 815 (2000).

Defendants applaud the efforts of several European countries to restrict minors from taking transitioning medications, but unlike Alabama's Act, these countries allow minors to take transitioning medications in exceptional circumstances on a case-by-case basis. *Defs.' Br.* (Doc. 74) at 76–82. According to Dr. Cantor, Defendants' own expert witness, no state or country in the entire world

has enacted a blanket ban of these medications other than Alabama. *Tr.* at 328. The Act, unlike the cited European regulations, does not even permit minors to take transitioning medications for research purposes, even though Defendants adamantly maintain that more research on them is needed. *Id.* at 326–27; *Defs.' Br.* (Doc. 74) at 116. Because Defendants themselves offer several less restrictive ways to achieve their proffered purposes, the Act is not narrowly tailored at this stage of litigation.

In sum, Parent Plaintiffs have a fundamental right to direct the medical care of their children. This right includes the more specific right to treat their children with transitioning medications subject to medically accepted standards. The Act infringes on that right and, as such, is subject to strict scrutiny. At this stage of litigation, the Act falls short of that standard because it is not narrowly tailored to achieve a compelling government interest. Accordingly, Parent Plaintiffs are substantially likely to succeed on their Substantive Due Process claim.

ii. Equal Protection Claim

Minor Plaintiffs claim that the Act discriminates against them based on their sex in violation of the Fourteenth Amendment. *Compl.* (Doc. 1) at 29–30.[15] The Equal Protection Clause provides that no State shall "deny to any person within its

[15] Based on the record evidence, the Court finds that Minor Plaintiffs have standing to bring their Equal Protection claim. Defendants raise no opposition to this conclusion. However, Parent Plaintiffs, Healthcare Plaintiffs, and Plaintiff Eknes-Tucker do not explain—nor is it readily apparent—how they have standing to bring an Equal Protection claim and, thus, are not substantially likely to succeed on the merits of their claim.

jurisdiction the equal protection of the laws." U.S. CONST. AMEND. XIV, § 1. The Clause's chief purpose "is to secure every person within the State's jurisdiction against intentional and arbitrary discrimination, whether occasioned by express terms of a statute or by its improper execution through duly constituted agents." *Vill. of Willowbrook v. Olech*, 528 U.S. 562, 564 (2000) (per curiam) (quoting *Sioux City Bridge Co. v. Dakota Cnty.*, 260 U.S. 441, 445 (1923)).

As the Supreme Court recently explained, "it is impossible to discriminate against a person for being homosexual or transgender without discriminating against that individual based on sex." *Bostock v. Clayton Cnty.*, 140 S. Ct. 1731, 1741 (2020). Governmental classification based on an individual's gender nonconformity equates to a sex-based classification for purposes of the Equal Protection Clause. *Glenn v. Brumby*, 663 F.3d 1312, 1320 (11th Cir. 2011). Here, the Act prohibits transgender minors—and only transgender minors—from taking transitioning medications due to their gender nonconformity. *See* S.B. 184, ALA. 2022 REG. SESS. § 4(a)(1)–(3) (Ala. 2022). The Act therefore constitutes a sex-based classification for purposes of the Fourteenth Amendment.

The State views things differently. The State argues that the Act creates two categories of people: (1) minors who seek transitioning medications "for the purpose of attempting to alter the appearance of or affirm the minor's perception of his or her gender or sex, if that appearance or perception is inconsistent with the minor's sex";

and (2) "all other minors." *Defs.' Br.* (Doc. 74) at 93. (quoting S.B. 184, ALA. 2022 REG. SESS. § 4(a) (Ala. 2022)). Because transgender minors fall into both categories, the State reasons, the Act is not a sex-based classification. *Id.* at 94.

The fundamental flaw in this argument is that the first category consists entirely of transgender minors. The Act categorically prohibits transgender minors from taking transitioning medications due to their gender nonconformity. In this way, the Act places a special burden on transgender minors because their gender identity does not match their birth sex. The Act therefore amounts to a sex-based classification for purposes of the Equal Protection Clause. *See Glenn*, 663 F.3d at 1317 (explaining that "discrimination against a transgender individual because of her gender-nonconformity is sex discrimination").

Sex-based classifications are constitutional only when they satisfy a heightened standard of review known as intermediate scrutiny. *City of Cleburne v. Cleburne Living Ctr.*, 473 U.S. 432, 440 (1985). To satisfy this standard, a classification must substantially relate to an important government interest. *Miss. Univ. for Women v. Hogan*, 458 U.S. 718, 724 (1982). The State bears the burden to proffer an exceedingly persuasive justification for the classification. *Sessions v. Morales-Santana*, 137 S. Ct. 1678, 1690 (2017). An exceedingly persuasive justification is one that is "genuine, not hypothesized or invented *post hoc* in response to litigation." *United States v. Virginia*, 518 U.S. 515, 533 (1996).

The State again argues that the Act's purpose is to protect minors from experimental medications and to stop medical providers from "aggressively pushing" these medications on minors. *Defs.' Br.* (Doc. 74) at 109–120. As explained above, the State puts on no evidence to show that transitioning medications are "experimental." The record indicates that at least twenty-two major medical associations in the United States endorse these medications as well-established, evidence-based methods for treating gender dysphoria in minors. *Tr.* at 25, 97–98, 126–27. Finally, nothing in the record shows that medical providers are pushing transitioning medications on minors. Accordingly, the State's proffered justifications are hypothesized, not exceedingly persuasive. Thus, Minor Plaintiffs are substantially likely to succeed on their Equal Protection claim.

iii. Void-for-Vagueness Claim

Plaintiffs collectively claim that the Act is void for vagueness under the Fifth and Fourteenth Amendments because it does not sufficiently define "what actions constitute 'caus[ing]' any of the proscribed activities upon a minor." *Compl.* (Doc. 1) at 34–35. Under the void-for-vagueness doctrine, a penal statute must "define the criminal offense with sufficient definiteness that ordinary people can understand what conduct is prohibited and in a manner that does not encourage arbitrary and discriminatory enforcement." *United States v. Marte*, 356 F.3d 1336, 1342 (11th Cir. 2004) (quoting *United States v. Fisher*, 289 F.3d 1329, 1333

(11th Cir. 2002)). A federal court reviews a void-for-vagueness claim only when the litigant alleges a constitutional harm. *Bankshot Billiards, Inc. v. City of Ocala*, 634 F.3d 1340, 1349–50 (11th Cir. 2011).

In this context, constitutional harm comes in two forms: (1) where a criminal defendant violates a vague statute, comes under prosecution, and then moves to dismiss the charges on the grounds that he or she lacked notice that his or her conduct was unlawful; and (2) where a civil plaintiff is "chilled from engaging in constitutional activity" due to a vague statute. *Dana's R.R. Supply v. Att'y Gen.*, 807 F.3d 1235, 1241 (11th Cir. 2015). Here, Plaintiffs' void-for-vagueness claim falls into the second category.

Plaintiffs, however, are not substantially likely to succeed on their claim. Under ALA. CODE § 13A-2-5(a), a person is liable for causing a crime "if the result would not have occurred but for his conduct, operating either alone or concurrently with another cause, unless the concurrent cause was sufficient to produce the result and the conduct of the actor clearly insufficient." The fact that the Act has a scienter requirement greatly weighs against Plaintiffs' void-for-vagueness claim. *See, e.g.*, *Gonzales v. Carhart*, 550 U.S. 124, 149 (2007) ("The Court has made clear that scienter requirements alleviate vagueness concerns."); *Colautti v. Franklin*, 439 U.S. 379, 395 (1979) ("This Court has long recognized that the constitutionality of a

vague statutory standard is closely related to whether that standard incorporates a requirement of mens rea.").

Also weighing against Plaintiffs' claim is the State's interpretation of the Act. During the preliminary injunction hearing, Alabama Solicitor General Edmund LaCour explained that a person must administer or prescribe transitioning medications to violate the Act. *Tr.* at 409–11. General LaCour opined that a person cannot violate the Act simply by advising a minor to take transitioning medications or by driving a minor to a gender clinic where transitioning medications are administered. *Id.* at 410.

Additionally, the statutory scienter requirement and the State's interpretation both align with the modern, plain-language definition of the word cause. According to Merriam-Webster's Dictionary, "cause" means to "effect by command, authority, or force" or "bring into existence" an action. *Cause*, MERRIAM-WEBSTER UNABR. DICTIONARY (3rd ed. 2002). Based on the record evidence, Plaintiffs do not show that they have been chilled from engaging in constitutional activity due to the Act. Plaintiffs are therefore not substantially likely to succeed on their void-for-vagueness claim at this stage of litigation.

iv. Free Speech Claim

Plaintiffs collectively claim that the Act violates their First Amendment right to free speech by prohibiting "any 'person,' including physicians, healthcare

professionals, or even parents, from engaging in speech that would 'cause' a transgender minor to receive medical treatment for gender dysphoria." *Compl.* (Doc. 1) at 33–34. The First Amendment provides that "Congress shall make no law . . . abridging the freedom of speech[.]" U.S. CONST. AMEND. I. At its core, "the First Amendment means that government" generally "has no power to restrict expression because of its message, its ideas, its subject matter, or its content." *Police Dep't of City of Chicago v. Mosley*, 408 U.S. 92, 95 (1972).

The Amendment, however, offers no protection to words that incite or constitute criminal activity. For example, sexually derogatory remarks may violate Title VII's general prohibition of sexual discrimination in the workplace. 42 U.S.C. § 2000-e2; *see also* 29 C.F.R. § 1604.11(a) (explaining that, under certain circumstances, "[u]nwelcome sexual advances, *requests* for sexual favors, and other *verbal* or physical conduct of a sexual nature" are actionable as sexual harassment under Title VII (emphasis added)). Likewise, "[s]peech attempting to arrange the sexual abuse of children is no more constitutionally protected than speech attempting to arrange any other type of crime." *United States v. Hornaday*, 392 F.3d 1306, 1311 (11th Cir. 2004). More examples abound, but the point is this: Where the State "does not target conduct on the basis of its expressive content, acts are not shielded from regulation merely because they express a discriminatory idea or philosophy." *R.A.V. v. City of St. Paul*, 505 U.S. 377, 390 (1992).

As explained *supra* Section III.A.1.iii, the Act does not criminalize speech that could indirectly lead to a minor taking transitioning medications. Rather, the only speech criminalized by Act is that which compels the administration or prescription of transitioning medications to minors. Accordingly, the Act targets conduct (administration and prescription), not speech. Plaintiffs are therefore not substantially likely to succeed on their First Amendment claim.

2. Plaintiffs' Preemption Claim

Parent Plaintiffs, Minor Plaintiffs, and Healthcare Plaintiffs bring their preemption claim under Section 1557 of the Affordable Care Act, 42 U.S.C. § 18116. *Compl.* (Doc. 1) at 31. Section 1557, through its incorporation of the Title IX, prohibits discrimination based on sex and the denial of benefits based on sex in any health program or activity that receives federal funding. 42 U.S.C. § 18116(a); 20 U.S.C. § 1681 *et seq.* Here, Plaintiffs generally rely on the same arguments Minor Plaintiffs made in support of their Equal Protection claim. *Pls.' Br.* (Doc. 8) at 49–52; *Tr.* at 379.

At this stage of litigation, Plaintiffs' preemption claim fails. As explained *supra* Section III.A.1.ii, only Minor Plaintiffs are substantially likely to succeed on their Equal Protection claim. Additionally, Section 1557—by incorporating the enforcement mechanism of Title IX—"is enforceable against institutions and programs that receive federal funds, but does not authorize suits against individuals."

Hill v. Cundiff, 797 F.3d 948, 977 (11th Cir. 2015). It is presently unclear how Plaintiffs may bring their preemption claim against Defendants who are state officials, not institutions. Due to these concerns, Plaintiffs are not substantially likely to succeed on their preemption claim.

B. Irreparable Harm

The Court next considers whether Parent Plaintiffs and Minor Plaintiffs will suffer irreparable harm absent injunctive relief.[16] Harm "is 'irreparable' only if it cannot be undone through monetary remedies." *Ne. Fla. Chapter of Ass'n of Gen. Contractors of Am.*, 896 F.2d at 1285. An irreparable harm is one that is "actual and imminent, not remote or speculative." *Odebrecht Const., Inc. v. Sec'y, Fla. Dep't of Transp.*, 715 F.3d 1268, 1288 (11th Cir. 2013). The risk of suffering severe medical harm constitutes irreparable harm. *See, e.g.*, *Bowen v. City of New York*, 476 U.S. 467, 483 (1986) (explaining that a risk of suffering "a severe medical setback" is an irreparable injury); *Blaine v. N. Brevard Cnty. Hosp. Dist.*, 312 F. Supp. 3d 1295, 1306 (M.D. Fla. 2018) (finding irreparable harm where doctor plaintiffs could not provide necessary medical care to their patients).

The Act prevents Parent Plaintiffs from treating their children with transitioning medications subject to medically accepted standards. S.B. 184, ALA.

[16] *See Church v. City of Huntsville*, 30 F.3d 1332, 1342 (11th Cir. 1994) (explaining that a court need not consider whether a plaintiff shows irreparable harm if he or she does not show a substantial likelihood of success on his or her claims).

2022 REG. SESS. § 4(a)(1)–(3) (Ala. 2022). The record shows that, without these medications, Minor Plaintiffs will suffer severe medical harm, including anxiety, depression, eating disorders, substance abuse, self-harm, and suicidality. *Tr.* at 20, 167. Additionally, the evidence shows that Minor Plaintiffs will suffer significant deterioration in their familial relationships and educational performance. *Id.* at 35, 112–13. The Court therefore concludes that Parent Plaintiffs and Minor Plaintiffs will suffer irreparable harm absent injunctive relief.

C. Balance of Harms & Public Interests

The Court now considers the final two elements together. To satisfy the third and fourth elements of a preliminary injunction, a plaintiff must show that the harm she will likely suffer without an injunction outweighs any harm that her opponent will suffer from the injunction and that the injunction would not disserve (or be adverse to) the public interest. *Scott v. Roberts*, 612 F.3d 1279, 1290 (11th Cir. 2010). These factors merge when the State is the opponent. *Swain v. Junior*, 958 F.3d 1081, 1091 (11th Cir. 2020) (per curiam).

This case largely presents two competing interests. On one hand, "preliminary injunctions of legislative enactments—because they interfere with the democratic process and lack the safeguards against abuse or error that come with a full trial on the merits—must be granted reluctantly and only upon a clear showing that the injunction before trial is definitely demanded by the Constitution and by the other

strict legal and equitable principles that restrain courts." *Ne. Fla. Chapter of Ass'n of Gen. Contractors of Am.*, 896 F.2d at 1285. On the other hand, "[a] democratic society rests, for its continuance, upon the healthy, well-rounded growth of young people into full maturity as citizens, with all that implies." *Prince v. Massachusetts*, 321 U.S. 158, 168–69 (1944).

Based on the record evidence, the Court finds that the imminent threat of harm to Parent Plaintiffs and Minor Plaintiffs—i.e., severe physical and/or psychological harm—outweighs the harm the State will suffer from an injunction. The Court further finds that an injunction is not adverse to the public interest. To the contrary, enjoining the Act upholds and reaffirms the "enduring American tradition" that parents—not the States or federal courts—play the primary role in nurturing and caring for their children. *Wisconsin v. Yoder*, 406 U.S. 205, 232 (1972). Accordingly, the final two factors favor injunctive relief.

IV. SECURITY

Defendants argue that, if injunctive relief is appropriate, the Court should require each Healthcare Plaintiff to post a $1 million security. *Defs.' Br.* (Doc. 74) at 159–60.[17] Calculating the "amount of an injunction bond is within the sound discretion of the district court." *Carillon Importers, Ltd. v. Frank Pesce Int'l Grp.*,

[17] According to Defendants, this amount represents that "by which [Healthcare] Plaintiffs will be unjustly enriched should they be allowed to administer profitable (and illegal) medical procedures to kids." *Defs.' Br.* (Doc. 74) at 160.

112 F.3d 1125, 1127 (11th Cir. 1997) (per curiam). Here, the Court finds that a security bond is not necessary for three reasons. First, as explained *supra* Part III, Healthcare Plaintiffs themselves are not entitled to preliminary injunctive relief. Second, Federal Rule of Civil Procedure 65 does not require the United States to pay security. FED. R. CIV. P. 65(c). Finally, Defendants do not allege that they will suffer any cost or economic harm if they are wrongly enjoined from enforcing the Act. *Defs.' Br.* (Doc. 74) at 159–60. The Court therefore relieves Plaintiffs from posting security under Rule 65.

V. CONCLUSION

For these reasons, the Court **GRANTS** in part Plaintiffs' motion for preliminary injunction (Doc. 7) and **ENJOINS** Defendants from enforcing Section 4(a)(1)–(3) of the Act pending trial. The Court **GRANTS** in part the United States's motion for preliminary injunction (Doc. 62) to the same degree and effect. All other provisions of the Act remain enforceable.

DONE and **ORDERED** May 13, 2022.

LILES C. BURKE
UNITED STATES DISTRICT JUDGE

DOC. 108

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER, *et al.*,	)	
Plaintiffs,	)	
&	)	
UNITED STATES OF AMERICA,	)	
Plaintiff-Intervenor,	)	
v.	)	No. 2:22-cv-00184-LCB
STEVE MARSHALL, in his official capacity as Attorney General of the State of Alabama, *et al.*,	)	
Defendants.	)	

DEFENDANTS' NOTICE OF APPEAL OF ORDER GRANTING PRELIMINARY INJUNCTION (DOC. 107)

Notice is hereby given that all Defendants in the above-captioned case appeal to the United States Court of Appeals for the Eleventh Circuit from this Court's May 13, 2022 Preliminary Injunction Opinion and Order (Doc. 107).

Respectfully submitted,

Steve Marshall
Attorney General

s/ Edmund G. LaCour Jr.
Edmund G. LaCour Jr. (ASB-9182-U81L)
Solicitor General

Christopher Mills
(SC Bar No. 101050)
(Admitted *pro hac vice*)

SPERO LAW LLC
557 East Bay St.
#22251
Charleston, SC 29451
Telephone: (843) 606-0640
cmills@spero.law

A. Barrett Bowdre (ASB-2087-K29V)
Thomas A. Wilson (ASB-1494-D25C)
Deputy Solicitors General

James W. Davis (ASB-4063-I58J)
Deputy Attorney General

Benjamin M. Seiss (ASB-2110-O00W)
Assistant Attorney General

OFFICE OF THE ATTORNEY GENERAL
STATE OF ALABAMA
501 Washington Avenue
P.O. Box 300152
Montgomery, Alabama 36130-0152
Telephone: (334) 242-7300
Fax: (334) 353-8400
Edmund.LaCour@AlabamaAG.gov
Barrett.Bowdre@AlabamaAG.gov
Thomas.Wilson@AlabamaAG.gov
Jim.Davis@AlabamaAG.gov
Ben.Seiss@AlabamaAG.gov

Counsel for Defendants

MAY 16, 2022

CERTIFICATE OF SERVICE

I certify that I electronically filed this document using the Court's CM/ECF system on May 16, 2022, which will serve all counsel of record.

s/ Edmund G. LaCour Jr.
Counsel for Defendants

DOC. 112

UNITED STATES DISTRICT COURT

MIDDLE DISTRICT OF ALABAMA

OFFICE OF THE CLERK

ONE CHURCH STREET, RM B-110

MONTGOMERY, ALABAMA 36104

DEBRA P. HACKETT, CLERK

TELEPHONE (334) 954-3600

May 19, 2022

NOTICE OF CORRECTION

From: **Clerk's Office**

Case Style: **Eknes-Tucker et al v. Marshall et al**

Case Number: **2:22-cv-00184-LCB**

This Notice of Correction was filed in the referenced case this date to attach the correct main PDF document to correct syntax.

The correct PDF document is attached to this notice for your review. Reference is made to document #107 filed on 5/13/2022.

DOC. 112-1

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

PAUL A. EKNES-TUCKER, *et al.*,	)	
	)	
Plaintiffs,	)	
	)	
v.	)	**Case No. 2:22-cv-184-LCB**
	)	
STEVE MARSHALL, *et al.*,	)	
	)	
Defendants.	)	

OPINION & ORDER

Several individuals and the United States challenge the constitutionality of the Alabama Vulnerable Child Compassion and Protection Act.[1] In part, the Act restricts transgender minors from utilizing puberty blockers and hormone therapies. Because the Supreme Court and the Court of Appeals for the Eleventh Circuit have made clear that: (1) parents have a fundamental right to direct the medical care of their children subject to accepted medical standards; and (2) discrimination based on gender-nonconformity equates to sex discrimination, the Court finds that there is a substantial likelihood that Section 4(a)(1)–(3) of the Act is unconstitutional and, thus, enjoins Defendants from enforcing that portion of the Act pending trial. However, all other provisions of the Act remain in effect, specifically: (1) the

[1] Based on their oral representations during a May 4, 2022 hearing, Plaintiffs seek to enjoin only Section 4(a)(1)–(3) of the Act. For purposes of this opinion, all references to "the Act" refer to these subdivisions unless noted otherwise.

provision that bans sex-altering surgeries on minors; (2) the provision prohibiting school officials from keeping certain gender-identity information of children secret from their parents; and (3) the provision that prohibits school officials from encouraging or compelling children to keep certain gender-identity information secret from their parents.

I. BACKGROUND

Regarding a child's belief that they might be transgender, Merriam-Webster's Dictionary defines a "transgender" person as one whose gender identity is different from the sex the person had or was identified as having at birth. *Transgender*, MERRIAM-WEBSTER UNABR. DICTIONARY (3rd ed. 2002). The Dictionary defines "gender identity" as a person's internal sense of being a male or a female. *Gender Identity*, MERRIAM-WEBSTER UNABR. DICTIONARY (3rd ed. 2002). These terms and definitions are largely consistent with those used by the parties. Accordingly, the Court relies on these terms throughout this opinion, but recognizes that they might mean different things to different people and in different contexts.

According to the uncontradicted record evidence, some transgender minors suffer from a mental health condition known as gender dysphoria. *Tr.* at 30.[2] Gender dysphoria is a clinically diagnosed incongruence between one's gender identity and

[2] "*Tr.*" is a consecutively paginated transcript of the two-day preliminary injunction hearing the Court held on May 5–6, 2022. For clarity, the Court cites to the internal pagination of the transcript rather than the ECF pagination.

assigned gender. *DSM-5* (Doc. 69-17) at 4. If untreated, gender dysphoria may cause or lead to anxiety, depression, eating disorders, substance abuse, self-harm, and suicide. *Tr.* at 20. According to the World Professional Association for Transgender Health (WPATH), an organization whose mission is to promote education and research about transgender healthcare, gender dysphoria in adolescents (minors twelve and over) is more likely to persist into adulthood than gender dysphoria in children (minors under twelve). *WPATH Standards of Care* (Doc. 69-18) at 17.[3]

In some cases, physicians treat gender dysphoria in minors with a family of medications known as GnRH agonists, commonly referred to as puberty blockers. *Id.* at 24; *Tr.* at 103. After a minor has been on puberty blockers for one to three years, doctors may then use hormone therapies to masculinize or feminize his or her body. *Tr.* at 108–11, 131. The primary effect of these treatments is to delay physical maturation, allowing transgender minors to socially transition their gender while they await adulthood. *Id.* at 105–06, 110–11. For clarity and conciseness, the Court refers to puberty blockers and hormone therapies used for these purposes as "transitioning medications."

Like all medications, transitioning medications come with risks. *Tr.* at 121–22. Known risks, for example, include loss of fertility and sexual function. *Id.*

[3] Plaintiffs, the State, and the United States individually introduced the WPATH standards into evidence during the May 5–6 preliminary injunction hearing.

at 132–33. Nevertheless, WPATH recognizes transitioning medications as established medical treatments and publishes a set of guidelines for treating gender dysphoria in minors with these medications. *WPATH Standards of Care* (Doc. 69-18) at 19. The American Medical Association, the American Pediatric Society, the American Psychiatric Association, the Association of American Medical Colleges, and at least eighteen additional major medical associations endorse these guidelines as evidence-based methods for treating gender dysphoria in minors. *Tr.* at 97–98; *Healthcare Amici Br.* (Doc. 91-1) at 15.[4]

The Alabama Vulnerable Child Compassion and Protection Act states in pertinent part:

> Section 4. (a) . . . [N]o person shall engage in or cause any of the following practices to be performed upon a minor if the practice is performed for the purpose of attempting to alter the appearance of or affirm the minor's perception of his or her gender or sex, if that appearance or perception is inconsistent with the minor's sex as defined in this act:
>
> > (1) Prescribing or administering puberty blocking medication to stop or delay normal puberty.
> >
> > (2) Prescribing or administering supraphysiologic doses of testosterone or other androgens to females.
> >
> > (3) Prescribing or administering supraphysiologic doses of estrogen to males.

[4] For a full list of the twenty-two major medical associations that endorse these guidelines, see *infra* note 12.

> (4) Performing surgeries that sterilize, including castration, vasectomy, hysterectomy, oophorectomy, orchiectomy, and penectomy.
>
> (5) Performing surgeries that artificially construct tissue with the appearance of genitalia that differs from the individual's sex, including metoidioplasty, phalloplasty, and vaginoplasty.
>
> (6) Removing any healthy or non-diseased body part or tissue, except for a male circumcision.

. . .

(c) A violation of this section is a Class C felony.

Section 5. No nurse, counselor, teacher, principal, or other administrative official at a public or private school attended by a minor shall do either of the following:

> (1) Encourage or coerce a minor to withhold from the minor's parent or legal guardian the fact that the minor's perception of his or her gender or sex is inconsistent with the minor's sex.
>
> (2) Withhold from a minor's parent or legal guardian information related to a minor's perception that his or her gender or sex is inconsistent with his or her sex.

S.B. 184, ALA. 2022 REG. SESS. §§ 4–5 (Ala. 2022). The Act defines a "minor" as anyone under the age of nineteen. *Id.* § 3(1); ALA. CODE § 43-8-1(18). The Act defines "sex" as "[t]he biological state of being male or female, based on the individual's sex organs, chromosomes, and endogenous hormone profiles." S.B. 184, ALA. 2022 REG. SESS. § 3(3) (Ala. 2022).

In support of these prohibitions, the Legislature made several legislative findings. *Id.* § 2. The Legislature found in part that "[s]ome in the medical community are aggressively pushing" minors to take transitioning medications, which the Act describes as "unproven, poorly studied . . . interventions" that cause "numerous harmful effects for minors, as well as risks of effects simply unknown due to the new and experimental nature of these interventions." *Id.* § 2(6), (11). The Legislature went on to find that "[m]inors, and often their parents, are unable to comprehend and fully appreciate the risk and life implications" of these treatments. *Id.* § 2(15). Thus, the Legislature concluded, "the decision to pursue" these treatments "should not be presented to or determined for minors[.]" *Id.* § 2(16).

Alabama legislators passed the Act on April 7, 2022.[5] Governor Kay Ivey signed the Act into law the following day.[6] In the week that followed, civil rights groups filed two lawsuits challenging the Act's constitutionality.[7] In *Ladinsky v. Ivey*, Case No. 2:22-cv-447 (N.D. Ala. 2022), several plaintiffs challenged the Act in the United States District Court of the Northern District of Alabama. The case

[5] Jo Yurcaba, *Alabama Passes Bills to Target Trans Minors and LGBTQ Classroom Discussion*, NBCNEWS.COM (Apr. 7, 2022, 4:22 PM), https://www.nbcnews.com/nbc-out/out-politics-and-policy/alabama-passes-bills-targeting-trans-minors-lgbtq-classroom-discussion-rcna23444.

[6] Madeleine Carlisle, *Alabama's Wave of Anti-LGBTQ Legislation Could Have National Consequences*, TIME.COM (Apr. 15, 2022, 11:40 AM), https://time.com/6167472/alabama-anti-lgbtq-legislation/.

[7] *Alabama Law Banning Transgender Medication Challenged in Two Lawsuits*, CBSNEWS.COM (Apr. 11, 2022, 10:05 PM), https://www.cbsnews.com/news/alabama-transgender-law-lawsuits/.

was randomly assigned to United States District Judge Anna M. Manasco. Judge Manasco recused, and the case was randomly reassigned to United States Magistrate Judge Staci G. Cornelius. After the parties declined to proceed before Judge Cornelius in accordance with 28 U.S.C. § 636(c), the case was randomly reassigned to the Honorable Annemarie C. Axon.

With *Ladinsky* pending, a separate set of plaintiffs challenged the Act in the United States District Court of the Middle District of Alabama. That case, styled *Walker v. Marshall*, Case No. 2:22-cv-167 (M.D. Ala. 2022), was randomly assigned to Chief United States District Judge Emily C. Marks. The *Walker* plaintiffs moved to enjoin enforcement of the Act and moved to reassign the case to United States District Judge Myron H. Thompson, alleging that he had previously presided over a similar case. The parties, however, later consented to transferring the case to the Northern District of Alabama for consolidation with *Ladinsky*. At that time, the *Walker* plaintiffs withdrew their motion to reassign.

On April 15, 2022, Chief Judge Marks transferred *Walker* to the Northern District of Alabama in accordance with the "first-filed" rule and 28 U.S.C. § 1404(a). The case was randomly assigned to this Court. Judge Axon then transferred *Ladinsky* to this Court for consolidation with *Walker*. That same day, at 6:24 p.m. CDT, the *Walker* plaintiffs filed a notice of voluntary dismissal without prejudice under Federal Rule of Civil Procedure 41(a)(1)(A)(i). The *Ladinsky* plaintiffs voluntarily

dismissed their case nine minutes later. Neither the *Walker* plaintiffs nor the *Ladinsky* plaintiffs explained their respective dismissals, but counsel for *Ladinsky* informed the press: "We do plan to refile imminently[.]"[8]

Sure enough, on April 19, four transgender minors (Minor Plaintiffs), their parents (Parent Plaintiffs), a child psychologist and a pediatrician (Healthcare Plaintiffs), and Reverend Paul A. Eknes-Tucker filed this suit in the United States District Court of the Middle District of Alabama and moved to enjoin the Act's enforcement pending trial. The case was randomly assigned to United States District Judge R. Austin Huffaker, Jr. Due to this Court's familiarity with *Ladinsky* and *Walker*, Judge Huffaker reassigned the case to this Court to expedite disposition of Plaintiffs' motion for preliminary injunction. With the Act set to take effect on May 8, the Court entered an abbreviated briefing schedule and set a hearing on Plaintiffs' motion for May 5–6.

Just days before the hearing, the United States moved to intervene on behalf of Plaintiffs under Federal Rule of Civil Procedure 24.[9] In the process, the United States filed its own motion to enjoin enforcement of the Act and requested to

[8] Paul Gattis, *Lawsuits Seeking to Overturn New Alabama Transgender Law Dropped, Could be Refiled*, AL.COM, https://www.al.com/news/2022/04/lawsuits-seeking-to-overturn-new-alabama-transgender-law-dropped-could-be-refiled.html (last updated Apr. 16, 2022, 9:22 PM).

[9] The United States's amended intervenor complaint does not add any additional claims, name any new defendants, or seek to expand the relief sought by Plaintiffs. *Compare Am. Intervenor Compl.* (Doc. 92) at 4–5, 13–14, *with Compl.* (Doc. 1) at 6–8, 28–35.

participate in the preliminary injunction hearing. Additionally, fifteen states moved for leave to proceed as *amici curiae*[10] and to file a brief in support of Defendants.[11] Twenty-two healthcare organizations also moved for leave to proceed as *amici curiae* and to file a brief in support of Plaintiffs.[12] Ultimately, the Court granted these motions in full, took the *amici* briefs under advisement, and gave the United States leave to participate during the preliminary injunction hearing.

During that hearing, the parties submitted hundreds of pages of medical evidence and called several live witnesses. Plaintiffs tendered Dr. Linda Hawkins and Dr. Morissa Ladinsky as experts in the treatment of gender dysphoria in minors. *Tr.* at 16, 92. Dr. Hawkins and Dr. Ladinsky testified that at least twenty-two major

[10] *Amici curiae*, Latin for "friends of the court," refers to a group of people or institutions who are not parties to a lawsuit, but petition the court (or are requested by the court) to file a brief in the action because they have "a strong interest in the subject matter." *Amicus Curiae*, BLACK'S LAW DICTIONARY (11th ed. 2019).

[11] The State *Amici* are the States of Arkansas, Alaska, Arizona, Georgia, Indiana, Louisiana, Mississippi, Missouri, Montana, Nebraska, Oklahoma, South Carolina, Texas, Utah, and West Virginia.

[12] The Healthcare *Amici* are the American Academy of Pediatrics; the Alabama Chapter of the American Academy of Pediatrics; the Academic Pediatric Association; the American Academy of Child and Adolescent Psychiatry; the American Academy of Family Physicians; the American Academy of Nursing; the American Association of Physicians for Human Rights, Inc. *d/b/a* Health Professionals Advancing LGBTQ Equality; the American College of Obstetricians and Gynecologists; the American College of Osteopathic Pediatricians; the American College of Physicians; the American Medical Association; the American Pediatric Society; the American Psychiatric Association; the Association of American Medical Colleges; the Association of Medical School Pediatric Department Chairs; the Endocrine Society; the National Association of Pediatric Nurse Practitioners; the Pediatric Endocrine Society; the Society for Adolescent Health and Medicine; the Society for Pediatric Research; the Society of Pediatric Nurses; the Societies for Pediatric Urology; and the World Professional Association for Transgender Health.

medical associations in the United States endorse transitioning medications as well-established, evidence-based methods for treating gender dysphoria in minors. *Id.* at 25, 97–98, 126–27. They opined that there are risks associated with transitioning medications, but that the benefits of treating minors with these medications outweigh these risks in certain cases. *Id.* at 57–58, 121–22, 136, 170. They also explained that minors and their parents undergo a thorough screening process and give informed consent before any treatment regimen begins. *Id.* at 41, 59, 132; *see also Consent Form* (Doc. 78-41) at 1–14. Finally, they testified that, without these medications, minors with gender dysphoria suffer significant deterioration in their familial relationships and educational performance. *Tr.* at 35, 112–13.

Plaintiffs also called Healthcare Plaintiff Dr. Rachel Koe (a licensed pediatrician), Plaintiff Eknes-Tucker, and Parent Plaintiff Megan Poe to testify about their personal knowledge and experiences regarding the treatment of gender dysphoria in minors. *Id.* at 150–51, 170–71, 195. Parent Plaintiff Megan Poe specifically described the positive effects transitioning treatments have had on her fifteen-year-old transgender daughter, Minor Plaintiff Allison Poe. *Id.* at 157–68.

According to Megan, Allison was born a male, but has shown evidence of identifying as a female since she was two-years-old. *Id.* at 153–54. During her early adolescent years, Allisson suffered from severe depression and suicidality due to gender dysphoria. *Id.* at 156–57. She began taking transitioning medications at the

end of her sixth-grade year, and her health significantly improved as a result. *Id.* at 163. Megan explained that the medications have had no adverse effects on Allison and that Allison is now happy and "thriving." *Id.* at 166–67. When asked what would occur if her daughter stopped taking the medications, Megan responded that she feared her daughter would commit suicide. *Id.* at 167.

Intervening on behalf of Plaintiffs, the United States tendered Dr. Armand H. Antommaria as an expert in bioethics and treatment protocols for adolescents suffering from gender dysphoria. *Id.* at 213–26. He reiterated that transitioning medications are well-established, evidence-based methods for treating gender dysphoria in minors. *Id.* at 120–21.

Defendants called two witnesses. *Id.* at 253, 337. First, Defendants tendered Dr. James Cantor—a private psychologist in Toronto, Canada—to testify as an expert on psychology, human sexuality, research methodology, and the state of the research literature on gender dysphoria and its treatment. *Id.* at 253–54. Dr. Cantor opined that, due to the risks of transitioning medications, doctors should use a "watchful waiting" approach to treat gender dysphoria in minors. *Id.* at 281. That approach, according to Dr. Cantor, "refers specifically to withholding any decision about medical interventions until [doctors] have a better idea or feel more confident" that the minor's gender dysphoria will persist without medical intervention other than counseling. *Id.* Dr. Cantor further testified that several European countries have

restricted treating minors with transitioning medications due to growing concern about the medications' risks. *Id.* at 296–97.

On cross examination, however, Dr. Cantor admitted that: (1) his patients are, on average, thirty years old; (2) he had never provided care to a transgender minor under the age of sixteen; (3) he had never diagnosed a child or adolescent with gender dysphoria; (4) he had never treated a child or adolescent for gender dysphoria; (5) he had no personal experience monitoring patients receiving transitioning medications; and (6) he had no personal knowledge of the assessments or treatment methodologies used at any Alabama gender clinic. *Id.* at 306–09. Accordingly, the Court gave his testimony regarding the treatment of gender dysphoria in minors very little weight. Dr. Cantor also testified that no country in Europe (or elsewhere) has categorically banned treating gender dysphoria in minors with transitioning medications. *Id.* at 326–28. Unlike the Act, Dr. Cantor added, those countries allow such treatments under certain circumstances and for research purposes. *Id.* at 327–28.

Defendants' other witness was Sydney Wright, a twenty-three-year-old woman who took hormone therapies for gender dysphoria for roughly a year beginning when she was nineteen. *Id.* at 338, 351, 357. She testified that she now believes taking the medication was a mistake and that she no longer believes gender dysphoria is a legitimate medical diagnosis. *Id.* at 348–49, 355. She also testified

that she received her treatments in Georgia and never visited a gender clinic in Alabama. *Id.* at 359–61.

II. LEGAL STANDARDS

The purpose of a preliminary injunction "is to preserve the positions of the parties" pending trial. *Bloedorn v. Grube*, 631 F.3d 1218, 1229 (11th Cir. 2011). When a federal court preliminarily enjoins a state law passed by duly elected officials, the court effectively overrules a decision "of the people and, thus, in a sense interferes with the processes of democratic government." *Ne. Fla. Chapter of Ass'n of Gen. Contractors of Am. v. City of Jacksonville*, 896 F.2d 1283, 1285 (11th Cir. 1990). This is an extraordinary and drastic remedy. *McDonald's Corp. v. Robertson*, 147 F.3d 1301, 1306 (11th Cir. 1998).

To receive a preliminary injunction, a movant must show that: (1) he or she has a substantial likelihood of success on the merits; (2) he or she will suffer irreparable injury absent injunctive relief; (3) the threatened injury to him or her "outweighs whatever damage the proposed injunction may cause the opposing party; and (4) if issued, the injunction would not be adverse to the public interest." *Siegel v. LePore*, 234 F.3d 1163, 1176 (11th Cir. 2000) (en banc). The movant bears the burden of persuasion on each element. *State of Fla. v. Dep't of Health & Hum. Servs.*, 19 F.4th 1271, 1279 (11th Cir. 2021).

III. DISCUSSION

Plaintiffs and the United States seek to enjoin Section 4(a)(1)–(3) of the Act pending trial under Federal Rule of Civil Procedure 65. *Pls.' Mot.* (Doc. 7) at 2; *Intervenor Pl.'s Mot.* (Doc. 62) at 2. Under this rule, a court may issue a preliminary injunction only after giving notice to the adverse party. FED. R. CIV. P. 65(a)(1). Where injunctive relief is appropriate, the movant must give security "to pay the costs and damages sustained by any party found to have been wrongfully enjoined or restrained." *Id.* at 65(c). Here, Defendants have received proper notice. The Court addresses whether Plaintiffs are entitled to preliminary injunctive relief before turning to the issue of security.

A. Substantial Likelihood of Success on the Merits

The Court first considers whether Plaintiffs are substantially likely to succeed on their claims. When a plaintiff brings multiple claims, a reviewing court must consider the plaintiff's likelihood of success on each claim. *See N. Am. Med. Corp. v. Axiom Worldwide, Inc.*, 522 F.3d 1211, 1226 (11th Cir. 2008). Here, Plaintiffs bring five causes of action: four constitutional claims and one preemption claim. The Court begins with Plaintiffs' constitutional claims.

1. Plaintiffs' Constitutional Claims

Plaintiffs' constitutional claims arise under the Civil Rights Act of 1871, 42 U.S.C. § 1983. *Compl.* (Doc. 1) at 28–30, 33–35. That statute guarantees "a

federal forum for claims of unconstitutional treatment at the hands of state officials[.]" *Heck v. Humphrey*, 512 U.S. 477, 480 (1994). To state a claim under § 1983, a plaintiff must allege: (1) the defendant deprived him of a right secured under federal law or the Constitution; and (2) such deprivation occurred under color of state law. *Richardson v. Johnson*, 598 F.3d 734, 737 (11th Cir. 2010) (per curiam).

Parent Plaintiffs claim that the Act violates their constitutional right to direct the medical care of their children under the Due Process Clause of the Fourteenth Amendment. *Compl.* (Doc. 1) at 28–29. Minor Plaintiffs assert that the Act discriminates against them based on their sex in violation of the Fourteenth Amendment. *Id.* at 29–30. Plaintiffs collectively allege that the Act is void for vagueness under the Fifth and Fourteenth Amendments. *Id.* at 34–35. Finally, Plaintiffs collectively claim that the Act unlawfully restricts their speech under the First Amendment. *Id.* at 33–34. The Court addresses Plaintiffs' claims in that order.

i. Substantive Due Process Claim

Parent Plaintiffs assert that the Act violates their constitutional right to direct the medical care of their children under the Fourteenth Amendment. *Compl.* (Doc. 1) at 28–29.[13] The Due Process Clause provides that no State shall "deprive any person of life, liberty, or property, without due process of law." U.S. CONST. AMEND. XIV.

[13] Based on the record evidence, the Court finds that Parent Plaintiffs have standing to bring their Substantive Due Process Claim. Defendants raise no opposition to this conclusion.

The Clause protects against governmental violations of "certain fundamental rights and liberty interests." *Washington v. Glucksberg*, 521 U.S. 702, 719–20 (1997). Fundamental rights are "those guaranteed by the Bill of Rights as well as certain 'liberty' and privacy interests implicit in the [D]ue [P]rocess [C]lause and the penumbra of constitutional rights." *Doe v. Moore*, 410 F.3d 1337, 1343 (11th Cir. 2005).

A parent's right "to make decisions concerning the care, custody, and control of their children" is one of "the oldest of the fundamental liberty interests" recognized by the Supreme Court. *Troxel v. Granville*, 530 U.S. 57, 65–66 (2000). Encompassed within this right is the more specific right to direct a child's medical care. *See Bendiburg v. Dempsey*, 909 F.2d 463, 470 (11th Cir. 1990) (recognizing "the right of parents to generally make decisions concerning the treatment to be given to their children").[14] Accordingly, parents "retain plenary authority to seek such care for their children, subject to a physician's independent examination and medical judgment." *Parham v. J.R.*, 442 U.S. 584, 604 (1979).

Against this backdrop, Parent Plaintiffs are substantially likely to show that they have a fundamental right to treat their children with transitioning medications subject to medically accepted standards and that the Act infringes on that right. The

[14] *See also PJ ex rel. Jensen v. Wagner*, 603 F.3d 1182, 1197 (10th Cir. 2010) (explaining that "the Due Process Clause provides some level of protection for parents' decisions regarding their children's medical care").

Act prevents Parent Plaintiffs from choosing that course of treatment for their children by criminalizing the use of transitioning medications to treat gender dysphoria in minors, even at the independent recommendation of a licensed pediatrician. Accordingly, Parent Plaintiffs are substantially likely to show that the Act infringes on their fundamental right to treat their children with transitioning medications subject to medically accepted standards.

The State counters that parents have no fundamental right to treat their children with experimental medications. *Defs.' Br.* (Doc. 74) at 120. To be sure, the parental right to autonomy is not limitless; the State may limit the right and intercede on a child's behalf when the child's health or safety is in jeopardy. *Bendiburg*, 909 F.2d at 470. But the fact that a pediatric treatment "involves risks does not automatically transfer the power" to choose that treatment "from the parents to some agency or officer of the state." *Parham*, 442 U.S. at 603.

Defendants produce no credible evidence to show that transitioning medications are "experimental." While Defendants offer some evidence that transitioning medications pose certain risks, the uncontradicted record evidence is that at least twenty-two major medical associations in the United States endorse transitioning medications as well-established, evidence-based treatments for gender dysphoria in minors. *Tr.* at 25, 97–98, 126–27. Indeed, according to Defendants' own expert, no country or state in the world categorically bans their use as Alabama

has. Certainly, the science is quickly evolving and will likely continue to do so. But this is true of almost every medical treatment regimen. Risk alone does not make a medication experimental.

Moreover, the record shows that medical providers have used transitioning medications for decades to treat medical conditions other than gender dysphoria, such as central precocious puberty, a condition in which a child enters puberty at a young age. Doctors have also long used hormone therapies for patients whose natural hormone levels are below normal. Based on the current record, Defendants fail to show that transitioning medications are experimental. Thus, Parent Plaintiffs are substantially likely to show that the Act violates their fundamental right to treat their children with transitioning medications subject to medically accepted standards.

Statutes that infringe on fundamental rights are constitutional only when they satisfy the most demanding standard of judicial review, strict scrutiny. *Williams v. Pryor*, 240 F.3d 944, 947 (11th Cir. 2001). To satisfy strict scrutiny, a statute must be "narrowly tailored" to achieve "a compelling state interest." *Reno v. Flores*, 507 U.S. 292, 302 (1993). The State's interest in "safeguarding the physical and psychological well-being of a minor is a compelling one." *Globe Newspaper Co. v. Superior Ct. for Norfolk Cnty.*, 457 U.S. 596, 607 (1982) (cleaned up).

Defendants proffer that the purpose of the Act is "to protect children from experimental medical procedures," the consequences of which neither they nor their parents often fully appreciate or understand. *Defs.' Br.* (Doc. 74) at 129; *see also* S.B. 184, ALA. 2022 REG. SESS. § 2(13)–(15) (Ala. 2022). Defendants also allege that the Act halts medical associations from "aggressively pushing" transitioning medications on minors. *Defs.' Br.* (Doc. 74) at 114; *see also* S.B. 184, ALA. 2022 REG. SESS. § 2(6) (Ala. 2022).

But as explained above, Defendants fail to produce evidence showing that transitioning medications jeopardize the health and safety of minors suffering from gender dysphoria. Nor do Defendants offer evidence to suggest that healthcare associations are aggressively pushing these medications on minors. Instead, the record shows that at least twenty-two major medical associations in the United States endorse transitioning medications as well-established, evidence-based treatments for gender dysphoria in minors. *Tr.* at 25, 97–98, 126–27. The record also indicates that parents undergo a thorough screening and consent process before they may choose these medications for their children.

Undoubtedly, transitioning medications carry risks. But again, the fact that pediatric medication "involves risks does not automatically transfer the power" to choose that medication "from the parents to some agency or officer of the state." *Parham*, 442 U.S. at 603. Parents, pediatricians, and psychologists—not the State or

this Court—are best qualified to determine whether transitioning medications are in a child's best interest on a case-by-case basis. Defendants' proffered purposes—which amount to speculative, future concerns about the health and safety of unidentified children—are not genuinely compelling justifications based on the record evidence. For this reason alone, the Act cannot survive strict scrutiny at this stage of litigation.

But even if Defendants' proffered purposes are genuinely compelling, the Act is not narrowly tailored to achieve those interests. A narrowly tailored statute employs the "least restrictive means" necessary to achieve its purpose. *Holt v. Hobbs*, 574 U.S. 352, 364 (2015). A statute is not narrowly tailored when "numerous and less-burdensome alternatives" are available to advance the statute's purpose. *FF Cosms. FL, Inc. v. City of Miami Beach*, 866 F.3d 1290, 1299 (11th Cir. 2017). Put differently, "if a less restrictive means is available for the Government to achieve its goals, the Government must use it." *United States v. Playboy Ent. Grp., Inc.*, 529 U.S. 803, 815 (2000).

Defendants applaud the efforts of several European countries to restrict minors from taking transitioning medications, but unlike Alabama's Act, these countries allow minors to take transitioning medications in exceptional circumstances on a case-by-case basis. *Defs.' Br.* (Doc. 74) at 76–82. According to Dr. Cantor, Defendants' own expert witness, no state or country in the entire world

has enacted a blanket ban of these medications other than Alabama. *Tr.* at 328. The Act, unlike the cited European regulations, does not even permit minors to take transitioning medications for research purposes, even though Defendants adamantly maintain that more research on them is needed. *Id.* at 326–27; *Defs.' Br.* (Doc. 74) at 116. Because Defendants themselves offer several less restrictive ways to achieve their proffered purposes, the Act is not narrowly tailored at this stage of litigation.

In sum, Parent Plaintiffs have a fundamental right to direct the medical care of their children. This right includes the more specific right to treat their children with transitioning medications subject to medically accepted standards. The Act infringes on that right and, as such, is subject to strict scrutiny. At this stage of litigation, the Act falls short of that standard because it is not narrowly tailored to achieve a compelling government interest. Accordingly, Parent Plaintiffs are substantially likely to succeed on their Substantive Due Process claim.

ii. Equal Protection Claim

Minor Plaintiffs claim that the Act discriminates against them based on their sex in violation of the Fourteenth Amendment. *Compl.* (Doc. 1) at 29–30.[15] The Equal Protection Clause provides that no State shall "deny to any person within its

[15] Based on the record evidence, the Court finds that Minor Plaintiffs have standing to bring their Equal Protection claim. Defendants raise no opposition to this conclusion. However, Parent Plaintiffs, Healthcare Plaintiffs, and Plaintiff Eknes-Tucker do not explain—nor is it readily apparent—how they have standing to bring an Equal Protection claim and, thus, are not substantially likely to succeed on the merits of their claim.

jurisdiction the equal protection of the laws." U.S. CONST. AMEND. XIV, § 1. The Clause's chief purpose "is to secure every person within the State's jurisdiction against intentional and arbitrary discrimination, whether occasioned by express terms of a statute or by its improper execution through duly constituted agents." *Vill. of Willowbrook v. Olech*, 528 U.S. 562, 564 (2000) (per curiam) (quoting *Sioux City Bridge Co. v. Dakota Cnty.*, 260 U.S. 441, 445 (1923)).

As the Supreme Court recently explained, "it is impossible to discriminate against a person for being homosexual or transgender without discriminating against that individual based on sex." *Bostock v. Clayton Cnty.*, 140 S. Ct. 1731, 1741 (2020). Governmental classification based on an individual's gender nonconformity equates to a sex-based classification for purposes of the Equal Protection Clause. *Glenn v. Brumby*, 663 F.3d 1312, 1320 (11th Cir. 2011). Here, the Act prohibits transgender minors—and only transgender minors—from taking transitioning medications due to their gender nonconformity. *See* S.B. 184, ALA. 2022 REG. SESS. § 4(a)(1)–(3) (Ala. 2022). The Act therefore constitutes a sex-based classification for purposes of the Fourteenth Amendment.

The State views things differently. The State argues that the Act creates two categories of people: (1) minors who seek transitioning medications "for the purpose of attempting to alter the appearance of or affirm the minor's perception of his or her gender or sex, if that appearance or perception is inconsistent with the minor's sex";

and (2) "all other minors." *Defs.' Br.* (Doc. 74) at 93. (quoting S.B. 184, ALA. 2022 REG. SESS. § 4(a) (Ala. 2022)). Because transgender minors fall into both categories, the State reasons, the Act is not a sex-based classification. *Id.* at 94.

The fundamental flaw in this argument is that the first category consists entirely of transgender minors. The Act categorically prohibits transgender minors from taking transitioning medications due to their gender nonconformity. In this way, the Act places a special burden on transgender minors because their gender identity does not match their birth sex. The Act therefore amounts to a sex-based classification for purposes of the Equal Protection Clause. *See Glenn*, 663 F.3d at 1317 (explaining that "discrimination against a transgender individual because of her gender-nonconformity is sex discrimination").

Sex-based classifications are constitutional only when they satisfy a heightened standard of review known as intermediate scrutiny. *City of Cleburne v. Cleburne Living Ctr.*, 473 U.S. 432, 440 (1985). To satisfy this standard, a classification must substantially relate to an important government interest. *Miss. Univ. for Women v. Hogan*, 458 U.S. 718, 724 (1982). The State bears the burden to proffer an exceedingly persuasive justification for the classification. *Sessions v. Morales-Santana*, 137 S. Ct. 1678, 1690 (2017). An exceedingly persuasive justification is one that is "genuine, not hypothesized or invented *post hoc* in response to litigation." *United States v. Virginia*, 518 U.S. 515, 533 (1996).

The State again argues that the Act's purpose is to protect minors from experimental medications and to stop medical providers from "aggressively pushing" these medications on minors. *Defs.' Br.* (Doc. 74) at 109–120. As explained above, the State puts on no evidence to show that transitioning medications are "experimental." The record indicates that at least twenty-two major medical associations in the United States endorse these medications as well-established, evidence-based methods for treating gender dysphoria in minors. *Tr.* at 25, 97–98, 126–27. Finally, nothing in the record shows that medical providers are pushing transitioning medications on minors. Accordingly, the State's proffered justifications are hypothesized, not exceedingly persuasive. Thus, Minor Plaintiffs are substantially likely to succeed on their Equal Protection claim.

iii. Void-for-Vagueness Claim

Plaintiffs collectively claim that the Act is void for vagueness under the Fifth and Fourteenth Amendments because it does not sufficiently define "what actions constitute 'caus[ing]' any of the proscribed activities upon a minor." *Compl.* (Doc. 1) at 34–35. Under the void-for-vagueness doctrine, a penal statute must "define the criminal offense with sufficient definiteness that ordinary people can understand what conduct is prohibited and in a manner that does not encourage arbitrary and discriminatory enforcement." *United States v. Marte*, 356 F.3d 1336, 1342 (11th Cir. 2004) (quoting *United States v. Fisher*, 289 F.3d 1329, 1333

(11th Cir. 2002)). A federal court reviews a void-for-vagueness claim only when the litigant alleges a constitutional harm. *Bankshot Billiards, Inc. v. City of Ocala*, 634 F.3d 1340, 1349–50 (11th Cir. 2011).

In this context, constitutional harm comes in two forms: (1) where a criminal defendant violates a vague statute, comes under prosecution, and then moves to dismiss the charges on the grounds that he or she lacked notice that his or her conduct was unlawful; and (2) where a civil plaintiff is "chilled from engaging in constitutional activity" due to a vague statute. *Dana's R.R. Supply v. Att'y Gen.*, 807 F.3d 1235, 1241 (11th Cir. 2015). Here, Plaintiffs' void-for-vagueness claim falls into the second category.

Plaintiffs, however, are not substantially likely to succeed on their claim. Under ALA. CODE § 13A-2-5(a), a person is liable for causing a crime "if the result would not have occurred but for his conduct, operating either alone or concurrently with another cause, unless the concurrent cause was sufficient to produce the result and the conduct of the actor clearly insufficient." The fact that the Act has a scienter requirement greatly weighs against Plaintiffs' void-for-vagueness claim. *See, e.g.*, *Gonzales v. Carhart*, 550 U.S. 124, 149 (2007) ("The Court has made clear that scienter requirements alleviate vagueness concerns."); *Colautti v. Franklin*, 439 U.S. 379, 395 (1979) ("This Court has long recognized that the constitutionality of a

vague statutory standard is closely related to whether that standard incorporates a requirement of mens rea.").

Also weighing against Plaintiffs' claim is the State's interpretation of the Act. During the preliminary injunction hearing, Alabama Solicitor General Edmund LaCour explained that a person must administer or prescribe transitioning medications to violate the Act. *Tr.* at 409–11. General LaCour opined that a person cannot violate the Act simply by advising a minor to take transitioning medications or by driving a minor to a gender clinic where transitioning medications are administered. *Id.* at 410.

Additionally, the statutory scienter requirement and the State's interpretation both align with the modern, plain-language definition of the word cause. According to Merriam-Webster's Dictionary, "cause" means to "effect by command, authority, or force" or "bring into existence" an action. *Cause*, MERRIAM-WEBSTER UNABR. DICTIONARY (3rd ed. 2002). Based on the record evidence, Plaintiffs do not show that they have been chilled from engaging in constitutional activity due to the Act. Plaintiffs are therefore not substantially likely to succeed on their void-for-vagueness claim at this stage of litigation.

iv. Free Speech Claim

Plaintiffs collectively claim that the Act violates their First Amendment right to free speech by prohibiting "any 'person,' including physicians, healthcare

professionals, or even parents, from engaging in speech that would 'cause' a transgender minor to receive medical treatment for gender dysphoria." *Compl.* (Doc. 1) at 33–34. The First Amendment provides that "Congress shall make no law . . . abridging the freedom of speech[.]" U.S. CONST. AMEND. I. At its core, "the First Amendment means that government" generally "has no power to restrict expression because of its message, its ideas, its subject matter, or its content." *Police Dep't of City of Chicago v. Mosley*, 408 U.S. 92, 95 (1972).

The Amendment, however, offers no protection to words that incite or constitute criminal activity. For example, sexually derogatory remarks may violate Title VII's general prohibition of sexual discrimination in the workplace. 42 U.S.C. § 2000-e2; *see also* 29 C.F.R. § 1604.11(a) (explaining that, under certain circumstances, "[u]nwelcome sexual advances, *requests* for sexual favors, and other *verbal* or physical conduct of a sexual nature" are actionable as sexual harassment under Title VII (emphasis added)). Likewise, "[s]peech attempting to arrange the sexual abuse of children is no more constitutionally protected than speech attempting to arrange any other type of crime." *United States v. Hornaday*, 392 F.3d 1306, 1311 (11th Cir. 2004). More examples abound, but the point is this: Where the State "does not target conduct on the basis of its expressive content, acts are not shielded from regulation merely because they express a discriminatory idea or philosophy." *R.A.V. v. City of St. Paul*, 505 U.S. 377, 390 (1992).

As explained *supra* Section III.A.1.iii, the Act does not criminalize speech that could indirectly lead to a minor taking transitioning medications. Rather, the only speech criminalized by Act is that which compels the administration or prescription of transitioning medications to minors. Accordingly, the Act targets conduct (administration and prescription), not speech. Plaintiffs are therefore not substantially likely to succeed on their First Amendment claim.

2. Plaintiffs' Preemption Claim

Parent Plaintiffs, Minor Plaintiffs, and Healthcare Plaintiffs bring their preemption claim under Section 1557 of the Affordable Care Act, 42 U.S.C. § 18116. *Compl.* (Doc. 1) at 31. Section 1557, through its incorporation of the Title IX, prohibits discrimination based on sex and the denial of benefits based on sex in any health program or activity that receives federal funding. 42 U.S.C. § 18116(a); 20 U.S.C. § 1681 *et seq.* Here, Plaintiffs generally rely on the same arguments Minor Plaintiffs made in support of their Equal Protection claim. *Pls.' Br.* (Doc. 8) at 49–52; *Tr.* at 379.

At this stage of litigation, Plaintiffs' preemption claim fails. As explained *supra* Section III.A.1.ii, only Minor Plaintiffs are substantially likely to succeed on their Equal Protection claim. Additionally, Section 1557—by incorporating the enforcement mechanism of Title IX—"is enforceable against institutions and programs that receive federal funds, but does not authorize suits against individuals."

Hill v. Cundiff, 797 F.3d 948, 977 (11th Cir. 2015). It is presently unclear how Plaintiffs may bring their preemption claim against Defendants who are state officials, not institutions. Due to these concerns, Plaintiffs are not substantially likely to succeed on their preemption claim.

B. Irreparable Harm

The Court next considers whether Parent Plaintiffs and Minor Plaintiffs will suffer irreparable harm absent injunctive relief.[16] Harm "is 'irreparable' only if it cannot be undone through monetary remedies." *Ne. Fla. Chapter of Ass'n of Gen. Contractors of Am.*, 896 F.2d at 1285. An irreparable harm is one that is "actual and imminent, not remote or speculative." *Odebrecht Const., Inc. v. Sec'y, Fla. Dep't of Transp.*, 715 F.3d 1268, 1288 (11th Cir. 2013). The risk of suffering severe medical harm constitutes irreparable harm. *See, e.g.*, *Bowen v. City of New York*, 476 U.S. 467, 483 (1986) (explaining that a risk of suffering "a severe medical setback" is an irreparable injury); *Blaine v. N. Brevard Cnty. Hosp. Dist.*, 312 F. Supp. 3d 1295, 1306 (M.D. Fla. 2018) (finding irreparable harm where doctor plaintiffs could not provide necessary medical care to their patients).

The Act prevents Parent Plaintiffs from treating their children with transitioning medications subject to medically accepted standards. S.B. 184, ALA.

[16] *See Church v. City of Huntsville*, 30 F.3d 1332, 1342 (11th Cir. 1994) (explaining that a court need not consider whether a plaintiff shows irreparable harm if he or she does not show a substantial likelihood of success on his or her claims).

2022 REG. SESS. § 4(a)(1)–(3) (Ala. 2022). The record shows that, without these medications, Minor Plaintiffs will suffer severe medical harm, including anxiety, depression, eating disorders, substance abuse, self-harm, and suicidality. *Tr.* at 20, 167. Additionally, the evidence shows that Minor Plaintiffs will suffer significant deterioration in their familial relationships and educational performance. *Id.* at 35, 112–13. The Court therefore concludes that Parent Plaintiffs and Minor Plaintiffs will suffer irreparable harm absent injunctive relief.

C. Balance of Harms & Public Interests

The Court now considers the final two elements together. To satisfy the third and fourth elements of a preliminary injunction, a plaintiff must show that the harm she will likely suffer without an injunction outweighs any harm that her opponent will suffer from the injunction and that the injunction would not disserve (or be adverse to) the public interest. *Scott v. Roberts*, 612 F.3d 1279, 1290 (11th Cir. 2010). These factors merge when the State is the opponent. *Swain v. Junior*, 958 F.3d 1081, 1091 (11th Cir. 2020) (per curiam).

This case largely presents two competing interests. On one hand, "preliminary injunctions of legislative enactments—because they interfere with the democratic process and lack the safeguards against abuse or error that come with a full trial on the merits—must be granted reluctantly and only upon a clear showing that the injunction before trial is definitely demanded by the Constitution and by the other

strict legal and equitable principles that restrain courts." *Ne. Fla. Chapter of Ass'n of Gen. Contractors of Am.*, 896 F.2d at 1285. On the other hand, "[a] democratic society rests, for its continuance, upon the healthy, well-rounded growth of young people into full maturity as citizens, with all that implies." *Prince v. Massachusetts*, 321 U.S. 158, 168–69 (1944).

Based on the record evidence, the Court finds that the imminent threat of harm to Parent Plaintiffs and Minor Plaintiffs—i.e., severe physical and/or psychological harm—outweighs the harm the State will suffer from an injunction. The Court further finds that an injunction is not adverse to the public interest. To the contrary, enjoining the Act upholds and reaffirms the "enduring American tradition" that parents—not the States or federal courts—play the primary role in nurturing and caring for their children. *Wisconsin v. Yoder*, 406 U.S. 205, 232 (1972). Accordingly, the final two factors favor injunctive relief.

IV. SECURITY

Defendants argue that, if injunctive relief is appropriate, the Court should require each Healthcare Plaintiff to post a $1 million security. *Defs.' Br.* (Doc. 74) at 159–60.[17] Calculating the "amount of an injunction bond is within the sound discretion of the district court." *Carillon Importers, Ltd. v. Frank Pesce Int'l Grp.*,

[17] According to Defendants, this amount represents that "by which [Healthcare] Plaintiffs will be unjustly enriched should they be allowed to administer profitable (and illegal) medical procedures to kids." *Defs.' Br.* (Doc. 74) at 160.

112 F.3d 1125, 1127 (11th Cir. 1997) (per curiam). Here, the Court finds that a security bond is not necessary for three reasons. First, as explained *supra* Part III, Healthcare Plaintiffs themselves are not entitled to preliminary injunctive relief. Second, Federal Rule of Civil Procedure 65 does not require the United States to pay security. FED. R. CIV. P. 65(c). Finally, Defendants do not allege that they will suffer any cost or economic harm if they are wrongly enjoined from enforcing the Act. *Defs.' Br.* (Doc. 74) at 159–60. The Court therefore relieves Plaintiffs from posting security under Rule 65.

V. CONCLUSION

For these reasons, the Court **GRANTS** in part Plaintiffs' motion for preliminary injunction (Doc. 7) and **ENJOINS** Defendants from enforcing Section 4(a)(1)–(3) of the Act pending trial. The Court **GRANTS** in part the United States's motion for preliminary injunction (Doc. 62) to the same degree and effect. All other provisions of the Act remain enforceable.

DONE and **ORDERED** May 13, 2022.

LILES C. BURKE
UNITED STATES DISTRICT JUDGE

DOC. 129

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
NORTHERN DIVISION

REV. PAUL A. EKNES-TUCKER, et al.,	*	
Plaintiffs,	*	2:22-cv-00184-LCB
	*	May 5, 2022
vs.	*	Montgomery, Alabama
	*	9:00 a.m.
KAY IVEY, in her official capacity as Governor of the State of Alabama, et al.,	*	
Defendant.	*	

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TESTIMONY OF RACHEL KOE, MD

TRANSCRIPT OF PRELIMINARY INJUNCTION HEARING
VOLUME I
BEFORE THE HONORABLE LILES C. BURKE
UNITED STATES DISTRICT JUDGE

Proceedings recorded by OFFICIAL COURT REPORTER, Qualified pursuant to 28 U.S.C. 753(a) & Guide to Judiciary Policies and Procedures Vol. VI, Chapter III, D.2. Transcript produced by computerized stenotype.

CHRISTINA K. DECKER, RMR, CRR
Federal Official Court Reporter
256-506-0085/ChristinaDecker.rmr.crr@aol.com

APPEARANCES

FOR THE PLAINTIFFS:
Melody Eagan, Esq.
Jeff Doss, Esq.
LIGHTFOOT, FRANKLIN & WHITE, LLC
The Clark Building
400 20th Street North
Birmingham, Alabama 35203

Brent Ray, Esq.
KING & SPALDING
353 N. Clark Street
12th Floor
Chicago, Illinois 60654

Michael Shortnacy, Esq.
KING & SPALDING
633 W. Fifth Street
Suite 1600
Los Angeles, California 90071

Jason R. Cheek, Esq.
US ATTORNEYS OFFICE, NDAL
1801 Fourth Avenue North
Birmingham, Alabama 35203

John Michael Powers, Esq.
DOJ-Crt
Civil Rights Division
950 Pennsylvania Avenue
Washington, DC 20530

FOR THE DEFENDANT:
James W. Davis, Esq.
Edmund LaCour, Esq.
Barrett Bowdre, Esq.
Benjamin Seiss, Esq.
Christopher Mills, Esq.
OFFICE OF THE ATTORNEY GENERAL
501 Washington Avenue
P.O. Box 300152
Montgomery, Alabama 36130-0152
(334) 242-7300

COURTROOM DEPUTY: Deena Harris

COURT REPORTER: Christina K. Decker, RMR, CRR

I N D E X

P R O C E E D I N G S

(In open court.)

MR. RAY: We call Dr. Rachel Koe.

RACHEL KOE, MD,

having been first duly sworn by the courtroom deputy clerk, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. RAY:

Q Good afternoon, Doctor.

A Hey.

15:49:44 Q Are you using a pseudonym here today?

A I am.

Q What is that pseudonym?

A Dr. Rachel Koe.

Q Dr. Koe, would you please introduce yourself to the Court?

15:49:54 A Yes. I am a pediatrician in southeast Alabama. I did my medical school and graduate school in Alabama. During which time, I met my husband, and we spent a short time out of the state of Alabama when I completed my pediatric training as a resident physician at a large children's hospital.

15:50:17 And then after that, we looked for a place to start our career and our family. And southeast Alabama was that place. So we moved back to southeast Alabama where I have been a board certified pediatrician and a licensed physician in Alabama for the last ten years.

15:50:33 Q Would you please describe your current practice to the Court?

A Yeah. So I practice in a rural town in southeast Alabama. But I see patients from all over southeast Alabama. And I see patients from birth until they graduate my practice at 19 and

15:50:54 364 days.

And I take care of all conditions. So I take care of children when they're well, and that's how we like to keep them. But I also take care of children with any kind of medical or mental health disorder.

15:51:07 Q Do you sometimes encounter conditions that you cannot treat yourself?

A Absolutely. So I would say frequently pediatricians encounter conditions that we can't treat ourselves, and I am no exception.

15:51:25 So while general pediatricians are experts in a wide variety of things, we cannot stay up to date on every single topic. And so when we are presented with a condition that is rare, we usually rely upon specialists to help us out.

But also if there are conditions that require more 15:51:47 comprehensive care that I cannot provide all those levels of care in my office -- for example, if a patient has cystic fibrosis, those patients require not only to see a pediatrician, but also a pulmonologist, and a GI doctor, and nutritionist. And we like to send those patients -- you can 15:52:05 imagine that seeing all those different physicians is easier done if it's done in the same place. So we like to send those patients to centers where they can receive all of that care in the same place.

Q So could you give an overview, then, of the process that 15:52:19 you go through when you are considering referring or presenting

the option of a referral to a patient and their family?
A Absolutely. So when I need to make a referral for a patient -- which I don't like to do if I don't have to because you know that means extra travel and extra cost for my
15:52:39 patients, as well.

When I need to make a referral for my patient, first and foremost, I want to make sure that the level of care that they are getting or the quality of care that they're getting is at least as good as the quality of care that I am giving them in
15:52:53 my office.

I, you know, pride myself on being a physician who attempts to provide highest quality evidence-based care for all of my patients, regardless of how they present to me. And so I want to make sure those patients get that same quality of care.

15:53:12 And so when I am considering a referral, you know, I -- the first -- I have to present the referral to the family. And I usually will explain why I think they need a referral to somebody else, why I cannot provide all of the care that they need. And if there are options of multiple places where I can
15:53:33 refer them, I will give them multiple options.

Some cases there are no options, there's just one place that I can refer, and then I will tell them that.

But I also try to ensure that whoever I am making that referral to, whoever I am recommending a referral to or
15:53:48 suggesting a referral to is someone that I -- that I trust.

And so I am looking for a specialist who has, you know, adequate training, that has experience taking care of the condition that -- for which I'm making the referral, and that has -- has had good outcomes. And so that their reputation is 15:54:10 that they've had good outcomes treating that -- treating that condition.

Q When was the first time that you treated a transgender patient?

A Yeah. It's a -- much to my surprise, the first time that 15:54:23 I treated a transgender patient was about two years into my career. It was eight years ago. Although to be fair, I had been treating him since I moved to southeast Alabama. I just did not know that he was transgender.

And so I had a patient that I had developed a relationship 15:54:45 with right when I moved to southeast Alabama. He was one of my first patients that I had an encounter with. We developed a relationship over time.

And I was caring for him for a variety of conditions, so I saw him for his well-child checkups. But he was also 15:55:02 presenting to me with migraines. And so I took care of him for his migraine disorders. And he presented to me with anxious thoughts and depressed thoughts and thoughts of self-harm. And so I was caring for him, as well.

Initially for those things, I referred him to what -- he 15:55:20 was already seeing his pastor for some pastoral care, and I

referred him to a counselor. And I started him on some medical treatments for migraines and depression. But those medical treatments were proving ineffective. And he continued to have escalating concerns.

15:55:37 And so I eventually referred him to a psychiatrist and a neurologist, as well. And it was about that time, you know, a year or so into seeing the psychiatrist and neurologist and he was still not getting anywhere that he and his parents came to me and revealed to me that he was transgender.

15:55:58 Q Let me stop you there.

A Yeah.

Q So just to sum up, this particular patient you had seen for two years at this point in time?

A Uh-huh.

15:56:07 Q And they were -- this patient was seeing a therapist, a psychiatrist, and a pastoral counselor; is that right?

A That's correct.

Q And were they on the psychiatric medication at this time, as well?

15:56:21 A Yeah.

Q What were they on?

A By this point, they were on Zoloft and Topamax.

Q And how would you describe the dosages of these medications at this time?

15:56:30 A The doses were higher than I would have felt comfortable

with. Those are not medications -- those are medications that I have prescribed, but not at those doses.

Q Despite these treatments, was care and the level -- was the mental health of this patient improving?

15:56:55 A No. In fact, when he presented to me at that time, you know, two years into our relationship, that was the concern that he and his mom presented to me with was that we weren't getting anywhere. And they could see the medicines he was on, and they could see that, you know, he had all these different

15:57:17 doctors' appointments, but they were concerned that he was still suffering from thoughts of self-harm and he was not making any -- any gains.

Q And so at this time, did the patient express to you -- what did the patient say about thoughts of self-harm?

15:57:39 A Yeah. It was actually -- well, he told me that he was thinking that he would be better off dead. But it was his mom that really first told me that he was thinking of hurting himself. And she was really concerned.

They had a good relationship, and she said, you know, I

15:57:59 think I'm going to lose my son. But he said he wasn't trying -- he didn't want to commit suicide. But he wished he was better off dead.

Q At the time that this patient's issues around gender were revealed to you, what else did you learn about their history

15:58:18 with these issues?

A So this was the time when kind of all of the pieces of the puzzle started to come together for me. I had learned from his mom that he had been saying he was a boy since he was a young child, even wishing on his fourth birthday candles that people would know that he was a boy. She had allowed him to present this way at home. It just made him look like a tomboy, and that, you know, wasn't problematic in their community.

But over time as he approached puberty, it had been getting worse. And that's when I had come into the picture. But, again, not knowing the gender concerns, I didn't have that piece of the puzzle at the time.

And he -- but it had been getting worse since puberty started. They had actually taken him out of school, and he was being home schooled because he did not feel comfortable presenting as a female at school. And so they were trying to home school. But his grades were in decline. And so was his mental health.

Q At this point in time, then, did you consider referring the patient and the family to the specialist?

A Absolutely.

So at this time is when I began to make the diagnosis of gender dysphoria. Gender dysphoria obviously is a diagnosis that is not a snapshot in time, but he presented with those -- the pieces that we had been seeing for years.

And with that history of long-standing gender dysphoria

and really was able to put that together for me, that that was where -- why his mental health -- or may have been one of the reasons why his mental health was in decline.

I had heard about transgender medicine when I was in residency, but the --

16:00:15

THE COURT: Ma'am, you're kind of getting into answers that his questions are not calling for.

THE WITNESS: I'm so sorry.

THE COURT: That's okay. Just listen very carefully to what he's asking you. Make sure you are not giving a narrative response. Just answer just what he asks you, okay.

16:00:25

THE WITNESS: Absolutely.

BY MR. RAY:

Q So you choose at this point in time to engage in a referral process. How did that conversation go with the family?

16:00:40

A Yes. So I told the family that I understood that this patient was transgender, but that I -- and I knew that that was not in and of itself pathological. So I reassured them of that. But I did not know what other help to offer them because that was not my specialty. And, but I told them that I could find someone who did know more about gender health if they were interested in learning more about transgender medicine.

16:01:03

Q And to whom did you -- and what was the family's reaction to this?

16:01:25

A The parent at the time said, absolutely, we want to know as much as we can because we're not getting anywhere right now.

THE COURT: Mr. Ray, how much longer is your direct going to be?

16:01:38 MR. RAY: It will be another ten minutes, Your Honor.

THE COURT: Okay.

BY MR. RAY:

Q And to whom did you then refer this patient?

A I referred the patient to Dr. Latif at UAB.

16:01:48 Q So did you keep up with your patient after the referral?

A Absolutely. I --

Q And from your perspective as the primary pediatrician, how did the condition of the patient change after they began going to the UAB clinic?

16:02:12 A Over time, he was able to come off of medication for his migraines. He was able to come off of medication for his depression. And he was able to see his counselor less and less frequently over the years. And he graduated from high school with honors and did well.

16:02:32 Q During this time, as well, did you administer any care to this patient regarding their gender dysphoria?

A Yes. He did not feel comfortable giving himself the testosterone injections, and so our clinic provided -- we did not prescribe the testosterone, but we gave the testosterone

16:03:01 injections, and we performed any labs that the gender clinic

needed. And I would review those labs before sending any information on to the gender clinic and kept up with his blood pressure and basic health.

Q Have you kept up with this patient in recent months or years?

A Yes. I -- I see his mother frequently because she brings in her other grandchildren to see me.

Q And what is -- what do you understand about how this experience has been for your patient at the gender clinic?

A So he is a thriving healthy adult and has no regrets and is doing well.

Q In subsequent experiences, have you had occasion to encounter patients who at least are expressing ideas of gender diversity?

A Yes.

Q And how do you deal with those patients who express those ideas, but without, you know, demonstrating severe distress?

A Yeah. So in, especially in prepubertally, we simply talk to the families and reassure them that gender diversity is not pathological.

We talk about allowing children to present as however they feel comfortable in dress and name and pronouns, however they feel comfortable, and if -- even if there's not a significant amount of psychological distress, if there is some distress within the family, then we make a referral for -- so that they

can receive mental health care, see a counselor.
Q So when you have a patient who is experiencing these types of symptoms, you don't automatically refer them to the gender clinic?
16:04:58 A No.
Q When you, however, have a different situation, what are you seeing in some of the patients who you believe are experiencing gender dysphoria?
A Yeah. So when a patient -- typically at the time that
16:05:18 they're entering puberty or during or after puberty is experiencing significant mental health concerns and they have -- they are transgender, and they explain to me that that is related and that's part of why they are suffering from their depressed and anxious thoughts, then I will share with them and
16:05:41 their family that there are gender experts out there that can help guide them if they need more information or want to pursue other options.
Q Have you ever had a patient with gender dysphoria that later desisted?
16:05:56 A No, I have not had that experience.
Q Have you ever had any of your transgender patients express regret over gender-affirming treatment?
A No.
Q Dr. Koe, what will happen to your transgender patients if
16:06:20 the law SB 184 goes into effect?

A So I have patients -- or a patient that is on hormone therapy right now. I am -- that therapy has been very effective for her.

I am concerned that because it is so effective that she is not going to stop therapy, but she's going to find some other not great ways to get the therapy. And that -- you know, less safe.

So, you know, she may get estrogen from a source that is not reputable. She is not going to be followed by a physician for side effects or for efficacy or even for dosing. And so I am concerned about that.

And then future patients, I'm concerned that I won't have more than that I can do for them when they come to me with dysphoria that is not being effectively treated by mental health therapy alone.

Q And specifically to the parents of your patients, how do you perceive the enactment of this law will affect them?

A I -- I can't read minds, of course. But my first family, when they came to me for -- to express to me that gender dysphoria was the issue, the mom felt lost and hopeless, and that's what she told me. She said, you know, I don't know what else I can do. I don't know where to go from here.

And so I -- if they don't have other options, and they don't have experts in the state that they can talk to about this issue, or options for other treatments that have been

shown to be effective, I imagine that they will stay feeling hopeless and lost.

Q Final question.

A Uh-huh.

16:08:16 Q Doctor, what do you believe this law will do to you in your practice?

A Well, as I already mentioned, I strive to provide the highest level of evidence-based care that I can. And I imagine that I will continue to see transgender patients. I have had

16:08:35 five in my ten years. And I don't see that stopping.

And so I imagine that I will be stuck in a place where I don't know how to proceed. Do I counsel them on therapies that exist in other states? Do I make those referrals? What are the legal consequences to that? Do I, you know, do I not

16:09:02 provide them what is known to be evidence-based care? Am I providing discriminatory care in that situation?

You know, I don't -- I won't know what to do with these patients. And I'm afraid --

THE COURT: Hold on just a minute.

16:09:19 So I have got a question for Mr. LaCour, whoever wants to field it on your end. We may have covered this yesterday, and maybe I am not clear on it.

But does the State of Alabama consider a referral to trip the law?

16:09:35 MR. LACOUR: Your Honor, I don't think simply

referring someone to another doctor would be causing treatment. There would still be -- the cause would still ultimately be whatever the other doctor does at the end of the day. So...

THE COURT: Is there anything that you have seen in what she's just described on the record that she does in her practice that would trip the law?

MR. LACOUR: Well, administering could -- I mean, that would be directly -- directly administering the drugs would be covered by the law. But...

16:10:19 THE COURT: Anything other than that?

MR. LACOUR: No. Your Honor, I don't believe so.

THE COURT: Okay. All right. Sorry to interrupt.

MR. RAY: That's all right.

Thank you, doctor. No further questions.

16:10:40 THE COURT: Who is handling cross?

MR. MILLS: I am, Your Honor.

THE COURT: Are we tendering the witness? Hello?

MS. EAGAN: I'm sorry, Your Honor. May I consult with him just a minute, please?

16:10:57 THE COURT: You can.

MS. EAGAN: Thank you.

MR. RAY: Nothing further.

CROSS-EXAMINATION

BY MR. MILLS:

16:11:25 Q Good morning, Doctor. My name is Christopher Mills, and I

represent the State defendants. I have just a few questions for you. If any of them are not clear, please just let me know.

Have you been a plaintiff in any other cases involving this law?

A No.

Q In your practice, do you discriminate against patients based on their sex?

A No.

Q In one of your declarations in this case -- we can pull it up if you want, but I don't think we need to -- you said, My practice group recommends that parents vaccinate their children. Why do you recommend vaccination?

A Because it is evidence based and proven to be safe and effective.

Q And the FDA has approved those vaccinations?

A And the FDA has approved those vaccinations.

Q Are you familiar with RSV?

A I am familiar with RSV.

Q What is it?

A RSV is respiratory syncytial virus. It is a virus that causes the common cold in most people, but occasionally can put children in the hospital.

Q Can it result in children dying?

A Yes.

Q Is there a vaccine?
A Yes. But it is not a vaccine actually. It's an immunologic agent, but people call it a vaccine.
Q Is that recent?
16:12:41 A There has been a vaccine for a some time. There -- so it is not recent. I mean --
Q And --
A -- there's been a vaccine -- as long as I have been in practice, there has been some sort of a vaccine.
16:12:56 Q Starting at what age can that be given?
A At birth. I mean, so it depends. But it depends on what the situation is.
Q And does it prevent RSV?
A It does not prevent RSV. Again, it is not an actual
16:13:10 vaccine. It is a like an antibody against RSV. So if you are exposed to RSV, then it stops -- it attacks the RSV for you.
Q Sure. So I'm just going to ask you to -- sort of a thought question.
If there were a vaccine that would completely prevent RSV
16:13:29 in young children under five, but sterilized 5 percent of children who got it, would you give the vaccine?
A Probably not. And I don't think it would be routinely recommended.
Q You are not aware of any FDA-approved vaccine like that?
16:13:47 A I'm not aware of any FDA-approved vaccine like that.

Q I'd like you to look -- and I will put it up on the monitor for you. This is Plaintiffs' Exhibit 4. This was the declaration you submitted. And I have underlined a line there.

Would you be able to read that line for me?

16:14:10 A Yes. If I were to comply with the Act, I would be limited to referring her for counseling and psychiatry -- or and a psychiatrist.

Q So you would agree if the Act went into effect, you could refer patients for counseling and psychiatric help?

16:14:24 A Correct.

Q You choose to accept federal funding through Alabama Medicaid; is that right?

A Correct.

Q You are not required to accept federal funding?

16:14:34 A No.

Q In your well-child visits, do you give testicular exams to teens who are biological males?

A Yes.

Q Do you give testicular exams to teens who are biological

16:14:48 females?

A Yes. Sorry. No. Obviously. I apologize. I did not listen to the question correctly.

Q And, okay. Do you perform Tanner stage assessments?

A I do perform Tanner stage assessments.

16:15:02 Q What are you looking for in biological males?

A In biological males, I am looking for pubic hair where pubic hair is located and the description of the pubic hair and I am looking for the size of the testicles.
Q And what are you looking for in biological females?
16:15:18 A In -- I would be looking for absence of testicles in females. But I am also looking for breast staging. And so breast growth. And I am looking for pubic hair development.
And then signs of estrogenation, which are like increased thickness of the labia and increased thickness of the vaginal
16:15:45 walls, and things like that.
Q The declaration you submitted in this case, you were talking about your current patient, your current transgender patient. You mentioned that that patient is prescribed estrogen; is that right?
16:15:58 A Uh-huh.
Q Why aren't you administering testosterone to this patient?
A I'm sorry. I did not understand the question.
Q Sure. Why are you administering estrogen and not testosterone to this patient?
16:16:15 A The patient is a transgender female.
Q And your original -- your first patient who we talked about a few minutes ago?
A Right.
Q You talked about they came to your office to have
16:16:27 testosterone administered. Why was testosterone administered

and not estrogen?
A Because they are a transgender male.
Q So for each of the treatments we just talked about -- testicular exams, Tanner stage assessments, cross-sex
16:16:43 hormones -- do you consider your treatment to be discrimination based on sex?
A I do not.
Q Why is that?
A Discrimination is not a medical term. So I -- I don't
16:17:04 know if I'm applying it correctly, but I am using -- I am giving each patient the care for which their -- their sex and gender requires.
I still do Tanner stage patients with -- that are transgender. I still do examinations on those patients. I do
16:17:26 not -- not do -- you know, general exams on those patients.
But understanding that they are transgender and so their genital exam is going to look different than somebody else's genital exam.
Q I apologize. These seem a bit silly.
16:17:41 Have you been investigated for discrimination on the basis of sex because you only give biological males testicular exams?
A Nope.
Q Have you been sued for that basis?
A No.
16:17:52 Q Has the federal government threatened to revoke your

funding for that reason?
A No.
Q Do you agree that this Act that we're talking about here today prohibits you from prescribing or administering puberty blockers for purposes of gender transition to both boys and girls?
A Can you repeat that for me, please?
Q Sure. The Act we're here today talking about --
A Uh-huh.
Q -- do you agree that that would prohibit you from prescribing or administering puberty blockers to biological males or females?
A Yes.
Q So both your original patient and your newest patient?
A Yes.
Q And the same is true for a cross-sex hormones; is that right?
A Yes.
Q You talked about your first patient was struggling with gender dysphoria, but you didn't know that originally. So how old was that patient when you started seeing them?
A About 12.
Q And then how old were they when you determined that they were transgender?
A When they told me they were transgender was at 14.

Q And you hadn't seen a sign of that beforehand?
A Well, he presented himself as a male, but often we expect gender diverse presentation among children. And so it did not -- it shows my ignorance that it did not occur to me to ask him if he was transgender.
16:19:16
Q Your declaration mentions four more transgender patients since that first one.
You said, when those patients first came to see me, most had just started expressing that they were transgender. About how old were they at those points?
16:19:32
A So there have been four. So one already was actually transitioning. But another was 14. Another was 12. And then the other is -- gosh. I have to count.
So about 12.
Q And what was the biological sex of those patients?
16:20:00
A Their natal sex was male, male, female, sorry. My -- I'm trying to think through all my patients now.
So female, male, male, male.
Q You mentioned in your declaration that not all those patients went for experimental procedures at the UAB gender clinic. What happened to those patients who did not go for these procedures?
16:20:42
A Well, one is no longer -- was -- I only was able to see briefly as they were in the care of the State, and I do not know what happened to her.
16:21:04

One was -- is still in counseling.
Q And is that -- would you consider that patient to be healthy?
A Currently, yes.
16:21:20 Q So counseling has been sufficient to address that patient's gender dysphoria?
A Yes, which speaks to the diverse nature, the diverse trajectory of gender dysphoria in all children.
Q Your declaration mentions the necessity of regular blood
16:21:42 tests and lab work for individuals using these treatments. Why is that necessary?
A All medications can have side effects. So it really depends on their medication. Some of the lab work is actually for their psychiatric medications they were on prior to
16:21:58 starting -- starting the gender treatments. But to, you know, monitor normal things, kidney function and lipids that we know change during puberty. So when we start somebody on puberty, we need to monitor those things.
THE COURT: Mr. Mills, how long do you think the
16:22:19 continuation of your cross will be?
MR. MILLS: Four minutes.
THE COURT: That's a good number.
BY MR. MILLS:
Q And are there particular risks of estrogen or testosterone
16:22:31 in this context?

A There are risks of estrogen and testosterone always.
Q You would agree that at least some childhood gender dysphoria desists by adulthood, right?
A If it presents prepubertally, yes.
16:22:49 Q And you would agree that some individuals who transition their gender choose to detransition; is that right?
A I have never had that experience.
Q You think no -- you think no person like that exists?
A No, I don't -- I have not met such a person, but I don't
16:23:06 know if they exist.
Q You have never heard of that happening?
A I have heard of that happening, but by reputation only. I don't know. And I don't know anything about that person's medical care.
16:23:16 Q Because you don't treat patients past the age 19, you wouldn't necessarily know if one of your patients decided to detransition, right?
A Correct. Except that we live in southeast Alabama, and I know my patients for a very long time.
16:23:30 Q Do you think that children have the same decision-making abilities as adults?
A No.
Q Are they better or worse?
A That's a good question. But they're different. They do
16:23:49 not have executive functioning, so they do not always think

through consequences. And that is why we rely upon their parents to help consent for them.

Q Okay.

MR. MILLS: No more questions.

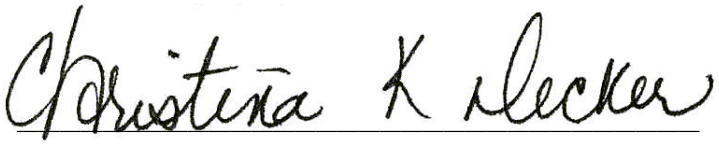
16:24:04 THE COURT: Any further redirect?

MR. RAY: No, Your Honor.

(End of testimony of Dr. Rachel Koe, MD.)

CERTIFICATE

I certify that the foregoing is a correct transcript from the record of proceedings in the above-entitled matter.



Christina K. Decker, RMR, CRR

Federal Official Court Reporter

ACCR#: 255

05-08-2022

Date

CERTIFICATE OF SERVICE

I certify that on July 5, 2022, I electronically filed this document using the Court's CM/ECF system, which will serve all counsel of record.

s/ Edmund G. LaCour Jr.
Edmund G. LaCour Jr.
Counsel for State Defendants